The Builder.

VOL. XLIV. No. 2089. SATURDAY, FEBRUARY 17, 1883.

ILLUSTRATIONS.

Sketches of the "Eden" Theatre, Paris 210
Blackmore Park, near Great Malvern (Ground-floor Plan, 219).—Mr. David Brandon, F.S.A., Architect 212
Ulm Cathedral, in course of Restoration: Exterior of the Choir (Double-page Engraving) 214, 215
View in the Courtyard of Stables, Brick-street, Mayfair.—Mr. James Brooks, Architect 217

CONTENTS.

New Vienna and its Art 197
Light out of Dirt 198
The Classic Face 199
New Paris 200
On the Application of Colour to Architecture 201
The Restoration of Two Historic Buildings 202
Vitrified Building 203
Lycian Antiquities 203
About Building Woods 204
The New Street from Piccadilly to Bloomsbury 205
Scottish Regimental Colours 206
Memorial of Robert Burns, the Scottish Poet, in Westminster Abbey 206
The National Memorial to King Victor Emanuel 206
The Position of Organs in Churches 206
Lectures on Architecture at the Royal Academy: Iron 207
The Eden Theatre, Paris 208
Ulm Cathedral and its Restoration 208
Blackmore Park 208
New Stables, Mayfair 208
The Proper Use of Modern Classical Architecture 221
Hints to Gas Consumers 221
New Buildings in Fleet-street 222
New Theatre at Valparaiso 222
Iron Cement 222
Mechanical Industry in Russia 223
The Gas Light and Coke Company and the Electric Light 223
Dublin Sanitary Association 223
Works at Sheffield Park 223
The Burdett Buildings in Westminster-bridge-road 223
Washable Lime Colour 224
Concrete Water-Pipes 224
The New York Elevated Railway 224
The Weehawken Tunnel 224
The Dome of St. Paul's 224
Garlands Asylum, Carlisle 224
The Construction of Theatres 224
Gas and Vegetation 225
Gas for Cooking Abroad 225
The New Church of the Oratory, Brompton 225
Proposed Artisans' Dwellings and Public Baths in St. Botolph's Parish, Bishopsgate 225
Westminster Abbey 225
The late Mr. C. Chaloner Ogle, Architect 225
Obituary 226
Building Patent Record 226
An Architect's Claim: Hesketh v. Rollwagen 226
Payment for Measuring Variations in Construction 226
Damp and Porous Walls 227
Lambeth Palace 227
Damp Houses at Bristol 227
Caution 227
Bankruptcy Law 227
Christ Church Cathedral, Dublin 227
Finchley School Competition 227
Building Disputes at the Bow County Court 227
The Adelphi Theatre 227
Stained Glass 227
Variorum 228
Miscellanea 228

New Vienna and its Art.

SOMETHING of what in artistic language is known as a side-light has been thrown on to the nature of the extraordinary building activity of late years in Vienna by the disastrous winding-up, within only a few days past, of one of the most important of the building societies of the Austrian capital. For six years the affairs of the Parzellirungs und Baugesellschaft have been in liquidation, but at length, with its 100 florin shares valued only at two and a half florins, the collapse of the unfortunate society was inevitable. It would indeed be a singular fact if, with such an amount of building as has been going on in Vienna for the last twenty years (but especially since the great Franco-Prussian war), with a population of a million, and a community of bankers whose places of business amount, it is said, to nearly 20,000,—it would be singular if we did not hear of some over-speculation; but Vienna at present, it must be admitted, exhibits the appearance in this respect of an exaggerated amount of building which no reasonable calculation would appear, at first sight at least, to warrant. Streets and streets of magnificent dwellings, rivalling in appearance of reality, and far exceeding in size, the largest club-houses in Pall Mall, are at present so imperfectly occupied that, with the exceptions of here and there a speculative *café* on the ground floor, the rest of the well-arranged apartments above, extending high into the air, are altogether unoccupied. Naturally the inhabitants of the older parts of the town are somewhat disposed to ridicule, in one way or another, all this hasty work, and living, as they and their ancestors have long done, within the well-protected and substantial ramparts of an old city, they look with some suspicion on the prospects, not only of injury to themselves by the rivalry without, but at the probable disasters that will overtake those who in many ways are concerned in their own interests.

Still as regards the appearance and beauty of "new Vienna," certainly the grandeur, the size, and the picturesque aspect presented by the new Rathhaus and its surrounding buildings, as they are viewed in the first place from the enormous piazza before the Votive Church, and so on by the new University and the new arcades, are such as may fairly be said to be equalled by no other city, leaving the spectator only the more in wonder, the longer he regards these great works, how in a country like Austria, how in any country indeed, can so much magnificence, so many requirements, be justified by existing circumstances or by any ever to exist. Architecturally there can be no question that the great building achievements of the last few years in Vienna must always be regarded as the greatest of modern days, when we consider that apart from the creations of private speculators themselves,—mostly of a palatial nature,—the great public buildings at present being erected on the Ring, simultaneously, and in a long line of a mile, are such colossal edifices as the new University, the Rathhaus (opposite it the huge new Burg Theatre), the House of Representatives, the Courts of Justice, and the two immense blocks which, when completed, are to receive the united contents of the national museums. The inspiration of much of all this imposing size, the effect of which impresses itself so forcibly on the stranger during his first acquaintance with Vienna, he discovers; when he has grown more familiar with the city, in the grandiose palaces of the nobility, scattered about the streets of the older parts of the town. With such examples filling the minds both of architects and employers, it was not to be expected that a new Vienna was to be outdone by the Vienna of the last century, and so not the largest palaces of Italy can vie in size with the huge blocks which have sprung up at the beck of the modern capitalist and contractor on and outside the line of the fortifications since their recent demolition. Stucco magnificence and zinc ornamentation have ruled supreme, though let us hasten to say that nothing probably can exceed the skill of the stucco-worker in Vienna, while not a word can be said against the solid brick core of the huge six and seven story blocks that have been the creation of the speculative building mania of the past few years. The traditions of the positively phenomenal stoutness of walls observable in the buildings of the old city,—strength required for purposes of protection in the days when Vienna was the bulwark of the West against Turkish agression,—have been worthily handed down to the present day, and on this score the Viennese of the near future will have no just cause for complaint against the building activity of this generation, who only too perseveringly seem to have been doing their utmost to show to the world the truth of that cynical old saw which has told us so uncompromisingly who the folks are who build the houses we occupy.

It is, indeed, difficult or impossible to be blind, amidst all this stone; and especially all this stucco, magnificence, to the appearance that it all is the result of a period of speculative industry, in which the members of the Bourse have had a larger share than any other class of less showy industries; and in contrasting the old city with the new, it is impossible that many serious changes in the sentiments of the practical Austrian will not have to take place before what is now the capital of his country will be a settled and an accomplished fact; "the sick woman," as it is said Prince Bismarck once called Austria, may take as long a time to die as "the sick man," but Austria, as surely as Turkey, is doomed, sooner or later, to become the spoil or the skilfully-nursed invalid of some stronger and more affluent friend.

In spite of the wealth of architecture that has sprung up of late years in Vienna, there is, it will be found, little architecturally that is new, to interest or instruct the lover of the grand art, little that is not to be found nearer home, or on the lines of travel more familiar and more suggestive, in those well-known cities that have so long and so abundantly supplied the whole civilised world of art with ever-satisfying and never-ending original motives. The famous modern Gothic Votive Church, the work of Ferstel, will, of course, always stand in its correct style as a worthy companion to the more picturesque cathedral,* and Semper's National Museum buildings must ever hold their own in the front ranks as the noble and learned work of a nineteenth-century student of the Renaissance, suggesting as modern German Renaissance work always does, the smaller but admirable front of Sansovino's *Libreria* at Venice; but it is to be feared that after all that may be said of the modern architect's work at Vienna, it, like its winter climate, is cold and barren, and the greater number of its street façades, like its enormous *piazze* in summer, are deficient in shadow and liveliness.

Where the art of the Viennese is displayed with the perfect look of that worldly splendour which so many of us regard as the approach to perfection, is at the theatres, the concert-halls, and especially in the *cafés*; at those places, if it were not that the entertainment supplied is almost invariably of a nature sufficiently good to command our admiration, we should be lost in wonder at the skill and the costliness and the labour involved in the production and keeping up of these very necessary places of public amusement. In what is called the "Artists' House" and the adjoining concert-room of the Musical Society, those whose duty it was to design and carry out these great halls appear positively to have exhausted their means of doing honour to the muses of the plastic arts and music. The critic, perhaps, may have cause for wonder at the great amount of trivial art displayed in both these magnificent buildings,—the vast amount of merely popular music led by the ever-favourite *bâton* of Edward Strauss in the literally gilded halls of the Musikverein; andin the adjoining Künstlerhaus, where modern pictures are displayed, the contrast between them and the splendour of the rooms is almost ludicrous, although, of course,

* Ferstel has, however, shown the versatility of his powers by his successful building of the New University in the style of the Renaissance.

just now it may be an unfortunate moment, as the exhibition is conspicuous by the absence of the works of the best known Viennese painters, such as Herr Makart, Von Angeli, and others whose names are not so familiar in England.

To the stranger, however, in Vienna, so largely is the evidence of deep artistic consideration in its various bearings brought before his eyes in the public buildings and elsewhere, that, as in the great Italian cities of the Renaissance, one would expect in Vienna, where the modern Renaissance has created such wonders, to find the whole conversation in the *cafés* and public places consisting of nice points of the science of æsthetics, and one could, without much difficulty, realise in one's mind, in the picturesque Hebrews who abound, some fresh arrival from the more Classic parts of the world, having in their possession treasures of ancient art, the exchange of which for more easily manipulated wealth they are anxious to negotiate,—men like George Eliot's Tito, well informed and familiar with the beautiful, but unscrupulous and greedy.

In point of fact, many of these gentlemen, who crowd especially the neighbourhood of the Bourse, are, in one way or another,—in many more ways than they are, perhaps, aware of,—concerned in the science of æsthetics, and although that great movement does not exist abroad in the petty shape that it assumes at home, a very large proportion of the money-making classes in Vienna are enormously concerned in supplying capital and urging its exercise in the direction of at least would-be beautiful objects. It would, indeed, be a curious point to obtain an accurate statement alone of the capital concerned in the trade of furnishing and decorating the many thousands of apartments that go to form the miles of substantial streets that are being or have been built in Vienna.

In Vienna, one of the great manufacturing centres of those multitudinous objects that so many of us seem to require as adornments to our mantelpieces, our side-boards, the corners of our rooms, our halls and staircases, our cabinets,—and our lumber-rooms, and especially our china closets, are at the present moment, it is to be regretted, preternaturally large and Brobdingnagian,—just now, from the greatly enlarged size of the houses in Vienna, and indeed everywhere, the manufacturers of furniture of every description are forced to increase the scale of their wares. The potters especially, however, seem at work with designs of vases of every conceivable form, correct forms made hideous by gigantic roses and vegetables standing forth in unnatural relief, but in more cases incorrect forms modestly concealed by ill-designed ornamentation, always large, always clumsy, and of a nature to defy the most crafty and careful handmaid in the matter of dusting, only suggesting to the lover of better art, who carefully cherishes some well-designed and well-covered vase of a past age, what in the name of Apollo he could do with one or more of these gigantic vases if a friend on his birthday, his marriage, or on his conviction for some great crime, should present him with one of these objects. Oxford-street, Bond-street, the Boulevards, or Westbourne-grove can show us in a degree vases of this description, supplied not only by our great English potters, but by those of France and other parts of the world, but it is not until the traveller reaches Vienna that he beholds the work of the ornamental ceramist in its largest and most hideous proportions.

Some idea of the character (some might say want of character) of the ornamental art, especially the potter's art, displayed in Vienna, may be formed when we say that probably if a party of the inhabitants of the more æsthetic sections of our great London "villadom" were directed to the Austrian capital to hunt for household and other ornamental furniture for their picturesque quarters, they would scarcely find a single object to satisfy their simple wants beyond perhaps a well-designed and useful porcelain stove, a few brushes and brooms, and, doubtless, any quantity of Hungarian linen, and perhaps only some modern draperies retaining something of an old design or feebly indicating the influence of our modern industrial museums. The millionaires and the princes of the earth, with enormous apartments and the necessity for much useless encumorances, with a sense of pecuniary comfort unassailable by the longest tradesman's bill, such may find many objects in Vienna to please; but to the man of taste, be he prince or *bourgeois*, it is not difficult to assign a place in his estimation for the respect that is due to the bulk of the manufactured ornamental art of the whole of Austria and its industrious but money and pleasure-seeking population.

Although it is impossible not to recognise, in the art displayed in the shops of the Viennese tradesmen, the existence of an acquaintance with every period and style of art, it is after all only with the architects of Vienna and Berlin, and not the painters, the sculptors, or the potters that there can be said to exist a steadfast adherence to the best art of any time. In the work of the architect, of such artists as Semper, as Ferstel, as Schmidt, or Hansen, are evident their veneration and knowledge of the grandest creations of the noble art, and no feeling but that of the most profound respect for the work of the architect can fail to impress any one regarding, in the Ring at Vienna, that great group of national monuments consisting of the Votive Church, the University, the Rathhaus, the Houses of Parliament, the Courts of Justice, the new Burg Theatre, and the two great blocks of the future National Museum; all, it is true, unfinished, but rapidly approaching completion. Still, after all that can be said of what is to be learned from the well-planned new neighbourhood of Berlin and Vienna, the first thought and the last that inevitably strikes one is, that M. Haussmann and Louis Napoleon's Paris has suggested to the Prussians and Austrians the possibility of outdoing in size and magnificence, and in science, commercially and financially considered, even the capital of France. Certainly in Vienna the municipality, the architect, the builder, the contractor, and the host of kindred industries, must of late years have reaped a harvest richer in pecuniary results than any the world has ever yet witnessed; during the gathering-in of crops so abundant, we must not, we suppose, be disturbed by the appearance of a feverishness and the evident existence of anxiety, or by a knowledge of the certainty of the failure and disaster that must overtake the unwary, the shortsighted, and, fortunately, the whole host of the unworthy.

Vienna.

LIGHT OUT OF DIRT.

THE most perplexed problem of modern times is the disposal of that refuse which comes under the name of sewage. In the many years during which our attention has been turned to the subject, while we have always refused to regard it as presenting an insoluble difficulty, we have seen solution after solution proposed only to fail. The reason has been, no doubt, that for agricultural purposes, which have alone hitherto been studied, the valuable matter contained in sewage is not enough, under ordinary circumstances, to pay the cost of extraction. And we confess that for some time our own views have pointed rather in the direction of the positive cremation of the solid refuse of sewage, for which its own composition is such as to afford the fuel, than to other modes of disposal.

Now, however, we are told by *Der Techniker* that an hotel in Breslau is actually lighted by a gas obtained from this unexpected source by a process invented by Herr Sandberger. We are bound to say that, however unlikely this may be, we see no proof that it is impossible. Of the solid material which is said to be utilised, 92·88 per cent. is water, 4·62 per cent. is organic matter, 0·70 is mineral, and 1·80 is gaseous. The organic matter is the source of all the danger, disgust, and trouble that characterise the subject. It is, we apprehend, not very different in its chemical elements from albumen. Now, 100 volumes of albumen consist of 53·32 parts of carbon, 15·70 parts of nitrogen, 7·29 parts of hydrogen, and 23·69 parts of oxygen. This is 60 per cent. of combustible material, viz., carbon and hydrogen. The nitrogen, passive as it is alone, or in the atmosphere, becomes vehemently active in its well-known combinations with oxygen. The oxygen only requires to be set free to discharge its own active functions. To say, then, that it is impossible to utilise this 60 per cent. of hydro-carbon is not what we are prepared to do. The material is said to be put in a retort, and not only dried but distilled by heat. A light gas first comes over, followed by carbonic acid, tar, oil, and ammonia. There remains a residuum of carbon, as in the distillation of coal. There is no doubt that the elements of all these substances are to be found in the matter treated. As to whether they are thus capable of being distilled, we can only say that we apprehend that no one has tried before, but that that is no reason to assert that *Der Techniker* is attempting to hoax its readers. We have ourselves made some experiments in the direction, with the view, however, not of distilling, but of oxidising. Our results were not satisfactory, but we are much inclined to attribute this to the imperfection of the apparatus. Without, then, being over credulous, or departing from the proper stand-ground of scientific doubt, we believe that the statement of *Der Techniker* is not impossible. We need not add that if it be true, the very blackest spot in the future of civilisation may be expected to become as evanescent as the spots in the sun.

It has seemed to us important not only to analyse the organic matter contained in the basis of sewage, but to trace the formation of the vegetable protoplasm, which is the abode of both vegetable and animal life, back to the commencement. It is well known that the food of plants,—exclusive of extremely minute portions of mineral matter,—consists of carbonic acid, ammonia, and water. Now taking the analyses above given, the volumes thus stated are arrived at by the elimination of 149·93 parts of oxygen from an aggregate (whether chemical compound or mechanical mixture) of 195·50 parts of carbonic acid, 19·06 parts of ammonia, and 35·37 parts of water, making in all 249·93 parts, which the elimination of the above-stated proportion of oxygen by the leaves of the plants reduces to the volume of 100. And the various organic substances differ so little in their proportions, that while albumen is formed by the loss of 60 per cent. of oxygen, the abstraction of 61 per cent. produces fibrine, that of 47·5 per cent. gelatine, and that of 45·4 per cent. starch.

Now if we compare the composition of average coal with that of the solid excreta utilised by Herr Sandberger, we have the following results:—

FÆCES.	
Water	75·00
Organic matter	12·20
Nitrogen	1·40
Phosphoric acid	1·06
Potash	0·29
Silica	1·48
Oxide of iron	0·54
Lime	1·72
Magnesia	1·55
Sulphuric acid	4·27
Soda	0·31
Chloride of soda	0·18
	100·00

Grouping these small quantities together we have:—

Water	75·00
Organic matter	12·20
Minerals and gas	12·80
	100·00

Now taking the organic matter to consist of albumen (and we have shown how close in their resemblance are the four main elements of organic substances), we have the following comparison:—

Composition.	Average coal.	Albumen.
Carbon (fixed)	60·00	53·12
,, (volatilised)	20·06	
Hydrogen	5 00	7·29
Sulphur	1·25	
Oxygen	8·00	23·69
Nitrogen	1·20	15·70
Ash flow	4·55	
	100·00	100·00

It is in the presence of the large quantities of oxygen and nitrogen, therefore, that the main difference of the elementary composition of the two substances consists. In the process of life, as we have seen, nearly 150 volumes of oxygen have been eliminated from 250 volumes of the plant-food. In the further process of carbonisation, occurring through the ages that have elapsed since the deposit of the plants now turned into coal, 15 or 16 per cent. more oxygen, and 14·50 per cent. more nitrogen, have been eliminated. There is thus a perfectly good basis for the inquiry, whether it is not possible, by means of the retort and the laboratory, to do in a short time what heat and pressure have accomplished in millions of years, and to produce the pabulum of gas in a manner not abnormal to the procedure of Nature herself.

It is a remarkable coincidence that, at the

very time when the account of this successful experiment at Breslau has reached this country, the result of a new patent obtained by Colonel Chamberlain for the manufacture of gas should be published. The process is said to consist in the distillation in a retort of four parts of refined petroleum and one part of water. This mixture, when cooled and refined, is diluted in the gas-holder with three times its bulk of atmospheric air. We will spare our readers the steps of the analysis of the constituents of these three items,—petroleum, water, and air,—and put the result side by side with that previously obtained from albumen :—

Composition.	Albumen.	Petroleum, water, and air.
Carbon	53·12	42
Hydrogen	7·29	8
Oxygen	23·69	21
Nitrogen	15·70	29
	100·00	100

It will be seen from the above that as far as the proportion of elements is concerned there is an advantage in the luminiferous proportion of the sewage gas,—so calling it to avoid a coarser name. It contains 60·41 per cent. of hydrocarbon, against 50 per cent. in the mineral-oil gas, and only 15·70 per cent. of nitrogen (which we will, for the moment, hold to be an anti-illuminant), against 29 per cent. The oxygen is 2·69 per cent. more in the former than in the latter. Thus, from equal volumes, it may be expected that from 10 to 20 per cent. more light may be obtained by Herr Sandberger than by Colonel Chamberlain.

We must not, however, forget that in the production of light the proportion of luminiferous elements is not the sole matter to investigate. The mode in which they are presented for combustion is of hardly less importance than the proportion itself. Many of the circumstances which affect this are as yet unknown. We do, however, know some of them. Thus it is certain that much more light is obtained from the combustion of an equal quantity of gas at a low, than at a high, pressure. It is consistent with this empirical law that Colonel Chamberlain claims that 700 ft. of his gas will burn for as long a period as 1,000 ft. of coal gas, and will give a greater illumination. This, he says, is due to the greater elasticity of the mineral oil gas, which thus necessitates a much lower pressure than that at which coal gas is supplied. That, very likely, is so. But the table we have just drawn up does not lead to the view that the petroleum and water gas will be necessarily more elastic than the sewage gas.

As to the former, we cannot but remark that the price of 1s. 6d. per 1,000 cubic feet seems to us very much more than the proportion of costly to costless elements in the gas warrants. Let us take coal gas at the round figure of forty pence per 1,000 cubic feet. Now whatever be the proportion in price between this gas and vaporised petroleum, it must be remembered that the latter only forms one-fifth part of the volume of the gas supplied from the Chamberlain gas-holder. We should, therefore, conclude that the price at which this can be supplied must be much lower than 18-40ths of the price of coal-gas.

Here, however, comes in the claim on the part of the German gas-maker, that so far from having to pay for his source of hydro-carbon, he might rather expect to be paid for getting rid of a nuisance. At all events (if the Breslau account be accurate) it is evident that no other gas is likely to compete in cheapness with that drawn from a source as to which, in that event, men will be tempted to exclaim "*Non olet.*"

Nor is this all. We spoke of a residuum of carbon. It must not be lost sight of that it may be possible to mix water in the one case with as good effect as in the other. But letting that alone, and remembering the costless character of the supply of carbon (on this theory), what is to prevent its use as fuel? It seems to us, that not only is the material for the gas costless, but that the greater part, at all events, of the fuel to be used to heat the retorts may be obtained from the same source; and if the only cost be the wear and tear of apparatus, and the manipulation, there is no reason why the gas itself should not be used to heat the retort, and thus effect its own distillation.

We are anxious not to be run away with by imagination. We were disposed to begin by saying that the announcement in *Der Teckniker* was too good to be true. We have put the matter to the only test at our command without a journey to Breslau. We have found that the actual constituents of the main portion of the substance treated by Herr Sandberger,—water apart,—bear a strong resemblance in proportion to those of local gas, with which they are identical in number and in chemical equivalence. And, curiously enough, at the very moment of analysis, we are told of a new and rival gas, that is said, from its constitution, to be much more illuminative, pound for pound of carbon, than the ordinary coal gas. With this latter gas, moreover, the Sandberger gas is almost identical in the proportion of elements, so that an unexpected, if not an unanswerable, argument in favour of the German discoverer is supplied by a rival who, economy apart, might almost expect to walk over the field. Repeating that all the accounts that we quote are to be received with reserve, but at the same time pointing to a chemical analysis, which is taken from the best authorities (we refer our readers to the invaluable "Manual of Rules, Tables, and Data," by D. K. Clark, if they wish to verify our analysis), we cannot but feel that there is enough in the vista thus opened to dazzle the imagination. To convert the great source of difficulty, danger, disgust, and disease, into the valuable material for an illuminant gas, would be one of the most brilliant triumphs ever achieved by science. And we hope that Liverpool will pardon a slight departure from its well-known motto, if we suggest that Herr Sandberger's scutcheon should bear the legend, *Ex fimo dare lucem.*

THE CLASSIC FACE.

THE Classic face, or, in other words, the Greek face, such as we find it in most ancient Greek sculpture, is disposed in front of a compact head, which is set on a columnar throat and neck. In the profile the facial angle is high, and the line from the tip of the nose to the hair comparatively straight. In none of the antiques is this latter characteristic more evident than in the series of statues of Niobe and her children at Florence. Indeed, there are no figures in which, taken altogether, the Greek ideal is more distinctly presented than in this family group. In this type the congruity of the other forms of the face with the straight line of the nose and forehead renders it perfectly agreeable, without which harmony of parts, however, it is doubtful if it would be so. Nevertheless, it must have been found in nature, or under no circumstances would it be acceptable. It is, however, very rare, and, indeed, it may be open to belief that the features of the old Greek race, which did so much in almost every intellectual department in so short a space of time, may differ not a little from what we find now existing, even in Greece.

As in the above series of statues, so also usually in other Greek antiques, it is accompanied by another peculiarity, namely, that the inner angle of the eye is higher than the outer, whereas the opposite relative position is, of the two, more common, not only in man, but especially in animals. To be the further removed from which latter configuration many have afforded one reason for the Greek treatment, as that seems to have formed part of their theory for the attainment of human beauty. In usual faces, however, no relative arrangement is more pleasing than that of the outer and inner corner of the eye being on a level. In the Classic face also the space between the eyes is exactly equal to the transverse length of each.

Between the eyes the nose is broad, as is also the *septum* between the nostrils. The wing of the nose is also usually somewhat lower than the tip, and is often strongly and distinctly defined, as may especially be noted in the Apollo Belvedere, the Venus of Melos, and the head of the Apollo Musagetes, in the British Museum. On the male brow the frontal sinuses are prominent, and forcibly marked, as may be well recognised in the newly-discovered Hermes, from Olympia.

The margin of the face all round from ear to ear under the chin is very decided, and, without being sharp, distinguishes it clearly from the throat, into which it never merges, as is often seen in nature, and again may be illustrated by the Niobe series. The Classic ear is small, and well set back; and in some instances, as in the Parthenaic type, is less than the accepted scholastic measurement of the same length as that of the nose. This seems founded on beauty, for not only is a small ear beautiful in itself, but its smallness gives a look of size to the cheek and features, without actually enlarging them.

The Greek height of the forehead is the same as the length of the nose. In Roman sculpture at a later date, especially in portraits, this space is much lessened by the hair being brought much lower down, as is seen in the well-known bust of the Clytie in the British Museum. This was done to give an appearance of youth in opposition to that of baldness; and the fashion of so dressing the front hair as to produce a somewhat similar effect has of late much come into vogue with the fair sex of Europe. This is often, without doubt, very pretty and becoming; and it possesses another graceful quality, as it lessens the apparent size of the head, so as to make the figure appear of taller proportions. At any rate, it is more pleasing in woman than the opposite extreme of too high and bare a forehead, which may even tend toward a look of effrontery. No point, however, of demarcation for the margin of the hair, in the case of a perfectly proportioned face, head, and figure, will more conduce to an agreeable appearance than that adopted by the Greeks in their sculpture, namely, that of the three following measurements being similar, viz., from the bottom of the chin to that of the nose, from that to the brow, and thence to the root of the hair. This standard of proportion may be said to be accepted, at least proximately, by all sculptors.

The mouth is always more or less curved and arched on each side of the centre of the upper lip, like the bow of Cupid to which it has been likened, and the upper lip less thick than the lower one. As in the words of Sir John Suckling,—

> "Her lips were red, and one was thin,
> Compared to that was next her chin,
> Some bee had stung it newly."

We naturally contemplate female form when we think of beauty, but these observations apply nearly equally to the features of either sex.

The chin is always firm and rather full, whether with or without a dimple in its centre. The cheeks have a certain flatness without depression, indicating perfect condition, and the muscles about the mouth are marked with decision, although tenderly, the angles of the mouth not terminating in a sharp point, but each in a roundness of shadow.

The eyes are very distinctly cut, affording the effect of clear sight and health, and there is no second fulness under the lower eyelid, notwithstanding that in nature this often vastly enhances the expression of the eye, although always, it may be suspected, at some expense of the look of youth.

The nose, straight in profile, is evidently the medium between the two other types, — the aquiline and the *retroussé*,—and may be accepted to be the most perfect. All noses, however, begin by being *retroussés* in infancy, in which early stage of life, indeed, any other form would be unpleasing. Soon after this, the bridge commences to grow, and if it stops when it attains a straight profile it may be considered most perfect, but an aquiline nose also is noble in appearance, especially in a man. It gives a look of decision, and a Roman nose is the nose of command and conquest, Wellington possessing this to a marked degree. Even in a woman, if it be fine and delicate in proportion, an aquiline nose is often beautiful, and gives an air of distinction. The *retroussé* nose, also, when refined in its form, is frequently very lovely and attractive, and is especially feminine as opposed to the decision of the more forcible male configuration, in which it seems appropriate that the bones should be more prominent. Still, however, it is rarely adopted in statuary, although often in painting with a most pleasing effect, as in pictures by Murillo, and the Spanish works of Philip and John Lewis, and in some by Greuze. Of whatever type of contour, however, a nose may be, it is essential for beauty that it should be neat and distinct in form, and far away from the vague bigness of that feature in some races, or when bloated by intemperance. The nose in the Kalmuck or the Negro is only to be noticed as illustrative of total divergence from beauty or dignity, and nostrils presented forwards instead of downwards offer the appearance not only of vulgarity, but impudence.

As the foreheads of the lower types of man retreat in comparison with those of the more

intellectual, the Greeks sought the opposite extreme as they rose in the scale of the beings they desired to represent in art. In the Athenian type of the king of Gods the greatest divergence from the sloping animal head is visible in the bringing out of the centre of the forehead from the brow to the line of the hair with such prominence that, phrenologically considered, it might even be thought to give that portion an undue predominance over the adjacent organs on either side. The attainment of the expression of supreme mental power was the object. The forehead of Neptune does not project quite so much in the centre, and that of Pluto is of the same character, but less refined. Nevertheless, the three great brothers, respectively of the skies, the ocean, and the world of shadows, possess in Greek art a strong family resemblance in accordance with their mystic genealogy. This is likewise the case with the sons of Jupiter, namely, Apollo, Mercury, Bacchus, and Hercules, although much varied, Apollo being the most beautiful and godlike, and Hercules, who is a deified athlete, the least so. Juno, the spouse of Jove, is cold, dignified, and placid. Minerva, the offspring of Jupiter without a mother, and the goddess of wisdom and education, is slightly masculine and stern. Diana resembles her twin brother Apollo, and of the daughters of Jove is next to Minerva in dignity. Venus is all that is attractive and fascinating, with most of the stronger points of contour softened. These examples of the ancient gods and goddesses are appropriate to cite, as in them culminate the essential peculiarities of the Greek type of feature and the Classic face, the same principles of configuration being found existing in a minor degree in the Greek representations of human forms of a lower level.

The proportions of the ancient statues present the heads small in relation to the figure, when compared with examples of usual nature. But the intellect, the critic might suggest, being the distinguishing characteristic of man, how then, especially in the higher subjects, is the dwelling-place of its immediate organ made so small, for it would argue that the brain is small also? But in reply it may be noted that, in the Greek statues, not only are their heads round and compact, but also that the situation of the ear, which indicates the base of the brain, is low, thus affording much space above for the mental organ. Moreover, as the muscular development of a beautiful body is not overcharged, but derives its peculiar strength from being well constituted and of firm fibre, so also this may be supposed to be the case with the brain that is contained in the head which surmounts this body. It may be in the recollection of most of us that we have seen living heads larger than usual with intellects nevertheless much short of what their amplitude promised, while, on the other hand, on record are heads of less size than is common, of which the brain power was very great, as, may be noted, those of Pope and of Curran. In truth, as in muscle so in brain, quality rather than expansion appears the main essential for power and activity. And as in the finest antiques the problem of the biggest man in the smallest compass was that of which the solution was sought in Greek art in respect to the body, so in the head a similar compactness was adopted for the dwelling-place of an implied perfectly-constituted brain.

Thus also, the head being small in proportion to the figure, so in consequence also is the face, to a degree which it must be acknowledged is rarely found in nature, but is, nevertheless, an essential consideration in statues which aim at grace and elegance.

The perfect type of the ancient Classic face, although it may have, to a great degree, disappeared in life, will ever remain a cherished dream of the sculptor, holding a similar place in his art to that which the ancient Classic poets do in literature. It will always be regarded with respect and affection, and continue to be consulted as a most valuable tutor in the principles of nobleness and grace, even in the production of works of which the constituent details may be of a different origin and character.

Members' Mansions.—Sir: As you were kind enough to insert a paragraph of our sale (on Tuesday, Jan. 30th) in your issue of Feb. 3rd (p. 158), we beg to inform you that we have sold the above premises privately for 61,000*l.*—Chinnock, Galsworthy, & Chinnock.

NEW PARIS.

Many of our readers, both abroad and at home, and many more who are not our readers, have conversed frequently in years gone by with friends who remembered Paris before the terrible events of 1793, before even the earlier days of the Revolution, when the Bastille stood in its hideous architectural solidity, to frighten and scare the world with its reality and its traditions of merciless political imprisonment and pitiless punishments. Of its history and, most of all, its destruction and its consequences, the world has within the last half-century had ample opportunity of being sufficiently informed. But our business, if business we have any with the Bastille, is to speak neither of its existence, its destruction, nor of the consequences of either, but of the changes of a very different kind that have taken place in Paris within our own memory. There are many of us living who have made the journey between London and Liverpool, or London and Edinburgh, in the old mail-coach days, starting from Regent-circus, and there are not a few of us who can remember their first visit to Paris in good King George's days, before even a dream of a Pullman car could ever, in the misery of a *diligence* journey, have passed through the brain of the traveller. Of all travellers' tales Sterne's "Sentimental Journey" remains most firmly in the memory; of the many writers who have described their experience of travel in France in the past, Sterne, Goldsmith, and Ruskin have afforded perhaps the highest delight. Thackeray's earliest visits to Paris and the Continent were before the days of railways and Pullman cars, and Turner, who knew nothing of the modern conveniences of travel, has left as enduring memorials of his many journeys as the most fascinating writer has ever done; certainly more faithful records of the scenes that so many of us now visit are not to be found than exist in Turner's splendid memorials of our own country and the Continent.

But how different a Paris did Sterne and Goldsmith, Turner and Thackeray, see, to the Paris of to-day,—the Paris that is daily growing more near and still nearer to completion. Outwardly at least, one may say, growing rapidly towards perfection, because in its lively and carefully studied architecture, in its well-paved streets and well-kept roadways, in its rapidly-growing area of cleanliness, in its disposition to consider scientific hygiene, and all sanitary questions, and in its watchfulness of the great economical theories that thoughtful men have ever regarded, and above all (in this journal, we must say) in the love of art in its varied manifestations, the ready and liberal encouragement of talent in its earliest moments of development, and its rewards for its results, Paris without a question stands foremost among the cities of the world. We have but to remember the magnitude of the difficulties that Paris has overcome within the last century to enable us to find ample excuse for many, if not all, of the at times glaring inconsistencies that strike the thoughtful traveller, but more often the prejudiced critic, the former alone, after all, having any right to hope that his opinion can carry with it any substantial weight.

In new Paris and the Paris as we now find it, whether we revisit it for a few days only or for a lengthened period, it must be confessed, no matter what be our political sympathies, that those moments of disgust that it was impossible not to experience in past days are now far less frequent in their recurrence, and we have but to recall the many incidents to be met with in other parts of the world, that shock even the least sensitive of us at home,—that is, if we reside in any of our large centres of industry,—to acknowledge the propriety at least of the exercise of some caution in the expression of our feelings. One fact there can be no gainsaying, that new Paris has advanced on the old within the last thirty years in a way and through means so varied as to leave us in doubt whether politics have had any share in this wonderful improvement.

We remember a popular Irish writer, the author of "Handy Andy," stating that in his opinion a man once having had a taste of London was not easy to satisfy with any smaller privilege than life in the metropolis of England; but this was said forty years ago, when Paris was not in the possession of the liberty it now enjoys. We are rather tired of hearing Paris spoken of as a city of pleasure, though it does not much shock the Parisians to have their capital regarded in that light, but we cannot speak of it too often with respect as a centre of work, of patient study, and laborious industry. Side by side in the busy streets the student and the pleasure-seeker jostle each other, occupy even the same house, though the true house of the community of mental toilers is in the classic Quartier Latin, divided from the racket of Paris proper by the Seine; in the quiet suburb they have long occupied as neighbours of the noisy students,—who are, however, not quite so noisy as in the past,—long may their memories rest with us. The historic families of France still live in the stately old hôtels their ancestors built in the days when the Faubourg St. Germain was, scarcely as it now is, a portion of new Paris, when no bustling Boulevard cut through its neglected gardens, hewing down their old trees and disturbing the quiet of their slumbers; far away at the east end of the city the toiling Faubourg St. Antoine is even more busy than it was in the days that Dickens has so well described in his "Tale of Two Cities," when from its crowded streets and courts growled the first raisers of the storm of the great Revolution.

Through all the changes of recent years, these sections of the metropolis have retained their respective characters; the city has spread out in different directions; new Paris has had, in common with every other great city of modern days, to find accommodation for its ever-increasing population; but throughout all this century Paris has enjoyed one inestimable blessing to which it owes no small share of its present position,—a centralised form of municipal government. Whether owing to this fact or not, it is difficult to say, but Paris has owed the many advantages it at present enjoys to the warm amount of civic pride and interest felt in its government by almost every inhabitant: thus while Paris, under these influences, has yearly found every suggested improvement warmly taken up, each forward step in London, unsupported by public interest, has been alone the result of a hard-fought battle with innumerable conflicting authorities. Year by year in Paris old abuses are being abolished and further privileges afforded to the number. A just limit is placed to the amount of individual liberty allowed to all, and a general advance forward marks the close of each year. Science and art go hand-in-hand to work out the many problems that remain so glaringly to be considered in our great centres of population.

But Paris and the Parisians, it must be admitted, owe to their ancestors no small debt of gratitude for the manner in which, as Carlyle has expressed it, they filled up the ditches for the onward march of the present generation. Many of the noblest institutions that render Paris so famous are the intelligent creations of the past, their original aims skilfully fostered by the generosity of the present. What does not Paris, for instance, owe to such an institution as the Collège de France, which offers gratuitously to all comers, students, young and old alike, such a series of lectures as are delivered daily in the college near the Sorbonne founded by Francis I., where every branch of learning can be followed under the guidance of the most eminent professors whom France produces, where the latest views on science, philosophy, literature, and art, the most abstruse questions of antique law, language, and archæology, are freely laid before the student by men who, in France, hold the highest position. During many months in the year, eight or ten lectures daily by such professors, lectures thrown freely open to the public, would suffice alone to constitute a source of pride to a great city. When, however, we add to the lectures of the Collège de France, the equally free lectures delivered at the École des Beaux Arts, where M. Taine has made known his whole artistic philosophy, the lectures delivered at the Jardin des Plantes, where such men as Milne-Edwards, Quatrefages, and Chevreul are the worthy successors of Cuvier and his generation; the lectures delivered at the Conservatoire des Arts et Métiers, specially intended for those in pursuit of the industrial arts; the lectures at the École des Arts Décoratifs; the lectures at the École Centrale des Architectes, where the study of architecture is followed in its most abstruse branches; the lectures delivered at the Sorbonne; at the neighbouring École de Droit to the law students; at the École de Médecine and the École de Pharmacie to the medical students; the lectures delivered in the Rue de

Lille on Oriental languages, on archæology at the Bibliothèque Nationale,—a list far from complete, but recently added to by the institution of the free artistic lectures delivered at the Louvre. When we sum up all these extraordinary facilities afforded to the merest outsider,—be he young or old, Frenchman or not,—to pursue in Paris any branch of study in which he may be interested, it is not, we think, exactly correct, when we consider how many other branches of study are represented in Paris, to designate the French capital as a city of pleasure. City of pleasure, indeed, it is, if work be, as it is in reality, true enjoyment; and in this sense Paris has been the home of riot ever since the days when Dante crossed the Alps to seek in the then already-famous Paris University the learning, so much of which had come to the banks of the Seine, exiled like him in later days from his fatherland.

New Paris is, after all, but the creation of all this fervour of the past, the continuation of the traditions earnestly handed down through generations of change and turmoil. Paris enjoys the privilege of having been governed by a succession of rulers whose aim it has been to make their capital the centre of intelligence of the world. Those who know the French capital well, even though they may be Englishmen, can excuse Victor Hugo for his love of, and belief in, the superiority of the city with the history of which his name is so intimately associated. To this belief, instilled largely into the inhabitants, is due the ease with which the municipality are enabled to carry out their plans.* The largest municipal loans are greedily taken up by the thrifty population, and hence funds are never wanting.

ON THE APPLICATION OF COLOUR TO ARCHITECTURE.

ON none of the subsidiary arts connected with architecture has there been in modern practice so little agreement with all ancient rules and customs as on this. It is only of late years that any one has conceded that the duty of architects is to give the best possible combination of form and colour, and that the completest form of architecture is that which affords examples of such a combination.

For the last three centuries architects have shown almost a contempt for colour, to such a degree, indeed, that the world, till lately, was taught to believe that purity of style and absence of colour always went together; and that it was only a vulgar and uneducated eye which saw the greatest evidence of good and matured thought in the harmonious application of colour and form. Our sculptors encouraged this feeling by their dislike to the application of colour to their work, even when it was purely architectural. Both architects and sculptors found it convenient, apparently, to disencumber themselves of one-half of the responsibilities of their calling, and escaped all obligation of studying the laws of colour, or of entering on the large field of its application to architecture; whilst our painters, partly because they lacked the opportunity, partly, it is true, because their art had ceased to be exercised for the public benefit in the old sense, had ceased to regard wall-painting as their legitimate work, and had so completely sunk into the habit of treating only small subjects in a small way, that it will take an age to develop in them the power of dealing properly with those large wall spaces which present them with the grandest opportunity of achieving real distinction. It is abundantly clear that those who argue against the application of colour to architecture, do so without the authority their ancestors would have given them. Of late years much attention has been devoted to this point; there has been considerable discussion, and in the end, though there has been much difference of opinion as to the extent to which colour was applied by the Greeks and Romans, there has been none as to the fact that, at any rate, some introduction of colour was well-nigh invariable in their work. Mr. Owen Jones's apology for the colouring of the Greek Court at the Crystal Palace contains, in a small compass, quite sufficient evidence to show how strong is the ground of those who maintain the necessity of colour in Classic buildings; and equally valuable is the report, drawn up by the committee of the Institute of British Architects, on the colouring of the Elgin marbles, with Professor Faraday's analysis of portions of the coatings of marbles brought from several ancient buildings in Athens, upon all of which he makes it perfectly clear that colour was extensively and generally applied. Professor Semper, of Berlin, in treating of the origin of architectural polychromy, proves that the Syrians, Persians, Egyptians, Chinese, Indians, Jews, Phœnicians, and Greeks, all used colour in their architecture and sculpture; and we may safely conclude, therefore, that there is no country which has been in any way remarkable for its architectural monuments in which the necessity of the combination has been ignored or forgotten. This statement is sufficient on the subject so far as it affects all ancient schools of art.

If we turn to later times we shall discover in all the schools of Mediæval artists a still greater and more pronounced adhesion to the same principle. It seems, indeed, almost superfluous to say that there are most abundant evidences of the fact that the architects of the Middle Ages were seldom satisfied until they had covered their walls with colour,—in one place, with that in which nature has been so lavish in marble and precious stones; in another, with the artificial tints of tiles and bricks; in another, with the bright stencilling of gay diapers over entire walls; or, lastly, in the teaching of Scripture story, or legend, or history, by the aid of the greatest painters of the day.

If we look, for instance, to Italy, we shall see what a lesson these artists have left us. There is, for instance, the Arena Chapel at Padua, designed by Giotto, and then painted by him with his own hands in such a fashion that, to the present day, this simple little room,—some 20 ft. by 40 ft. in its dimensions,—is one of the greatest pilgrimage places in Europe for all lovers of Christian art; and again, in that far grander work, the noble church, so finely stationed on the steep slopes of the Apennines at Assisi, we see how Cimabüé, Simone Memmi, Giotto, and many others, helped to cover with pictures, conceived in a really divine spirit, the walls which would otherwise, no doubt, have been resplendent with the less artistic, but still most effective, labours of the patient stenciller. The same lesson is taught if we look at the Campo Santo of Pisa, and see how Andrea Orcagna, that great architect, painter, sculptor, and poet, and beside him a succession of artists, among whom we count Buffalmacco, Simone Memmi, Giotto, and Benozzo Gozzoli, helped each in his turn in this illumination of architecture; or at the Church and Refectory of Sta. Croce, and the Church and Chapter-house of Sta. Maria Novella, and the crypt of San Miniato, Florence; or at that masterpiece of decorative art,—St. Mark's, Venice,—where precious marbles and mosaics, rich in gold and bright colour, almost dazzle the eye with their magnificence, but combine to make an interior in which none can fail to admit that the effect of the mere architecture of the building has been extraordinarily enhanced.

Nor was such practice as this peculiar to Mediæval artists; for the earlier Renaissance men had the same feeling in some degree, and Benozzo Gozzoli has shown us in his exquisite paintings in the chapel of the Riccardi Palace at Florence, and Perugino and Raffaelle in the Stanze of the Vatican, how their work might be best adorned.

But it was not only in Italy, the land *par excellence* of colour, that men had a true appreciation of its value. It need hardly be told how St. Louis, in the palmiest days of the French kingdom, covered the walls of the Sainte Chapelle of Paris with gold and colour and mosaic, and filled its windows with stained glass of the richest hues, so that to the present day it is an example of the most gorgeous colouring it is possible to conceive; or how, in England, when our monarchs wished to rival the zeal and enthusiasm of St. Louis, they gave, in St. Stephen's Chapel at Westminster, an example equally sumptuous and rich in colour; whilst at the same time, not only in our cathedrals, but in almost every parish church throughout our country, traces of more or less colouring are found to have existed over nearly the whole surface of the walls. Taking for granted, therefore, that every one will allow that it was, at any rate, the intention of all architects, as far as possible, to combine colour with form, it remains to be seen how this was accomplished. There were two great and distinct orders of architectural colourists,—the constructional and the decorative. The first were those who built their walls partially or altogether with coloured materials; the second, those who so built them that colour might afterwards be added, and with an especial view to its introduction. It is of the works of the former of these two classes that it is right to speak first, because the way in which they did their work was, on the whole, a more thoroughly enduring and proper way than that of the other school. It was also more definitely the works of architects.

The works of the constructional school of architectural colourists must be subdivided into two classes:—(1.) Those in which the coloured materials were part of the substance of the walls, and necessary for the stability of the whole fabric; and (2.) those in which the walls were covered with decoration, such as mosaic, or tiles, or thin veneers of marble, which had nothing whatever to do with their structural requirements. The first class was that which was, on the whole, both the best and the most frequently adopted. The few examples which we see in this country, and, indeed, generally throughout the North of Europe, belong to it. The poverty of England in coloured stones or marbles will account sufficiently for the comparative rarity of the examples we can adduce. Among them are many of the Northamptonshire churches,—as Irchester, Strixton, and St. Peter's, Northampton,—which are built with horizontal bands or courses of dark-red and light stones used alternately; in other districts we find courses of stones and flint alternately, as in the church of Penton Newsey, near Andover, and in a gateway at Rochester. In others flint and stone are used, but with inferior effect, in a regular chequer-work over the whole surface of the wall. In the church standing close to the north side of Rochester Cathedral, a course of chequer-work of flint and stone is introduced under one string-course, and two courses of flint, separated by one of stone under another. The churches of Essex, Suffolk, and Norfolk abound in examples of tracery, and other devices formed by cutting out patterns in the stone, and filling them in with carefully-cut and faced flints of very dark colour, so as to produce a very elaborate system of decoration in two tints. In the cloisters of Westminster Abbey the groining is executed in chalk, with occasional lines of dark stone at regular intervals. Our red-brick buildings are constantly diapered with patterns in black. The interiors of our churches, when not painted, were usually left with the natural colour of all the stone work,—whether wrought or not,—visible on the interior, an arrangement which, though rough and rugged in character, certainly gives a great amount of natural colour in a low key, but infinitely more agreeable to the eye than the cold expanse of plaster generally visible in new public buildings. Finally, throughout the thirteenth century the use of polished marble columns, of a colour much darker than that of the materials of the wall, is one of the most marked features in all the best English work, and cannot properly be omitted in any catalogue of modes of coloured construction.

Every one of these arrangements is noticeable as having been introduced intentionally, and with a sole view to variety of colour. In France, examples are much more numerous than in England, and the very interesting church at Vézelay is an early instance of the alternated use of dark and light stones in the interior as well as the exterior. Sta. Maria in Capitolio, at Cologne, has some good remains of the same kind; and St. Anne's Kloster, at Lübeck, is built with alternate courses of red brick and stone. It is in Italy, however, that we find the most plentiful store of examples of this kind of work, of which a few may be mentioned. The cathedral, baptistery, and the buildings generally, in Pisa and Lucca, are built both inside and out, with white stone courses, with thin courses of black marble occurring at about every fourth course. This is a very delicate and effective mode of dividing the wall space. The baptistery and campanile of the cathedral at Pistoia, and the campanile of Siena, are built in almost equal courses of black and white. In Genoa we find the same equal division of the courses in the façades of the cathedral, and of the churches of San Matteo and San Stefano. At Bergamo the porch of Sta. Maria Maggiore is executed in red, white, and grey marble. It is of three

* A proof of this is afforded in the recent determination of the Paris Municipal Council to institute shortly a Popular Opera House, a want which, for some time past, has been expressed by the ratepayers.

divisions in height, the highest stage being entirely of grey marble; the middle stage has all the moulded parts of red, and the arches and the spandrels of grey marble; the space at the back of the porch and over its main arch are built in equal courses of red and white marble; the groining is in black, red, and white marble, fitted to diamond-shaped panels, and all the shafts are of red marble. The whole design depends for effect almost entirely upon the arrangement and counter-changing of the three primary colours, the white becoming by age sufficiently yellow to take its place very well as one of them. Similar to this in the colours of its marbles is the thirteenth-century front of the Broletto or town-hall at Como; but here the courses are very irregular in their height, and not arranged upon any symmetrical rule. The campanile of the cathedral at Florence is the last example of this class that need be mentioned, and it is the very finest of all; here the component colours are red marble of Perugia, green serpentine, and white marble (the two latter have the effect at a slight distance of being black and yellow); but these colours are further varied by the introduction of very elaborate patterns inlaid in delicate marble mosaic on almost every available space, whilst glass mosaic is introduced behind sculpture in the stages near the ground, in order to make the figures as distinct as possible. It is important to observe that in this unsurpassed work Giotto showed not only his sense of the value of colour, but equally his feeling for true architectural proportion. No building was ever more carefully designed in this way, and the result is so great a success in outline, in detail, and in colour, as to make it one of the most worthy of study of any work in Europe. Here it may be observed, that in the doorways of St. Mark's, Venice, we have examples of exquisite beauty, of sculpture of foliage and figures in marble set off by a ground filled in entirely by mosaic, similar in idea to the way in which figures are set upon a mosaic ground in Giotto's work at Florence.

In the great church of San Petronio, at Bologna, the flat space between the two stone-moulded plinths is of red marble, and above the plinths the walls are all of red brick. This coloured plinth is very fine in its effect, and dignifies the whole building. The upper part of the Ducal Palace and the house called the Ca' d'Oro, at Venice, are examples of a coloured chequer-work over the whole surface of the wall. In the Ducal Palace this is arranged so as to form a regular diaper divided by lines of white and grey marble. The monument of Can Signorio, one of the Scaliger family, in the churchyard of Sta. Maria l'Antica at Verona, is a good example of the successful application of coloured materials to works of delicate detail. It is a lofty erection, composed of a great canopied monument in the centre, with a number of smaller canopied niches rising out of it, or standing upon shafts around it. The base is all of red marble, the niches have red marble columns, white gables, and red pyramids above them. The central mass is mainly of a yellowish tint, with white marble niches and pinnacles of red marble, and, owing to the extent to which the colours are counterchanged, the effect is very good. The west doorway of Sta. Anastasia, and the north doorway of San Fermo Maggiore, both at Verona, are beautiful examples of the simple alternation of white, red, and grey marbles in the jambs and arches; and in both these cases the extreme beauty of the effect appears to be owing to the delicacy and harmony of the tints of the marble employed, and to the absence of the very violent contrasts of colour which are sometimes seen.

There are other examples of buildings decorated with inlaid ornaments which belong to this class; such are some of the French churches, as, *e.g.*, those throughout the Puy de Dome, of which we may select as a typical example Notre Dame-du-Port, Clermont Ferrand. Here the lower part of the walls is of uniform colour, the windows have alternate voussoirs of light and dark stone, and the wall above them is entirely covered with a mosaic diaper; the walls are crowned with a heavy cornice supported on corbels, between each of which the space is filled in with a star in mosaic. Similar examples occur at St. Etienne, Nevers, in Poitou, on the banks of the Loire, and frequently in volcanic districts where dark and light materials, tufa and scoriæ, abound and suggest the treatment which has been adopted. Some of the churches at Pisa are very beautifully and delicately enriched by inlaying. The little Church of San Matteo has round all its arches inlaid chevrons, diamonds, or triangles, and a line of inlaying under the moulded eaves cornice of the aisle. The front of San Michele, also in Pisa, is covered with inlaid patterns filling in the spandrels, or following all the architectural lines of the arcading with which the whole upper part is covered; similar inlaid patterns are to be seen between corbels under the tympanum of the south door of San Paolo, Pistoia. An inlaid pattern is carried along under the string-course below the aisle windows of the Cathedral of Lucca, and here, as in the other examples which have been given, the inlaid material is dark, on the white ground of the stone wall, and the object of its introduction was, no doubt, to give as much emphasis as possible to important features. In the case of the windows at Lucca the label is of dark marble, whilst the rest of the head of the window is white. In the Church of San Domenico, Perugia, a window-arch is built of grey stone, with occasional voussoirs of red, and on these, in order to make them as conspicuous as possible, small rosettes are carved. Another window in the same church has alternate voussoirs of red and white stone, and a red shaft for a monial. In the Palazzo Publico, of Perugia, the cornices and strings have ranges of corbels, the spaces between which are filled in with red marble to make the shadow deeper and more effective; in the windows, the shafts are of red marble; and in the doorway the tympanum is of red marble with figures in white in front of it. The west front of Lucca Cathedral is inlaid in the most elaborate manner, the upper part with illustrations of field sports, and the lower part with geometrical patterns. Here, too, and in Giotto's campanile at Florence, the shafts themselves are inlaid in the same way as the rest of the work.

In the arcades outside the walls of San Fermo Maggiore, and in the windows of the little church opposite the cathedral at Verona, great effect is produced by the ingenious combination of brick and stone; and throughout the North of Italy examples of this sort of arrangement of colour occur, and there are none more easy of imitation or reproduction with good effect at the present day and in our own country. In Santa Antonio, at Padua, an arcade of brick and stone in the west front has all its spandrels filled in with red marble; and the case of the east end of the church at Murano will be remembered by all who have read Mr. Ruskin's "Stones of Venice." Here the substance of the walls is red brick for a few feet from the ground, and above that a rather coarse yellow brick; red brick is used in place of labels, &c., to define the arches; the shafts are of various marbles; and courses of marble, cut in triangles, and alternately coloured and carved, are also introduced. The examples here given are enough to show, at any rate, the general prevalence of a love of colour in the Middle Ages throughout Europe. It would be somewhat beyond the scope of the examination of such a subject from an architectural side to go at any length into the mode of decorative painting, which was almost universally adopted at the same time. In this application of colour all countries agree, and there is hardly room to doubt the beauty and expediency of the practice. The passage to the chapter-house at Salisbury, the early church of St. Mary at Guildford, the chapels at the east end of Winchester Cathedral, are interesting English examples of early work. The Norfolk screens and roofs are still more interesting and beautiful works of the richest description, and so numerous were these that at one time no church seems to have been thought furnished which had none of this kind of decoration. These had every portion of their moulded surfaces adorned in the richest way with gold and colours, whilst their solid panels were covered with pictures of single figures or subjects. English roofs were decorated in the same fashion, and of these the finest examples are in Peterborough Cathedral and St. Alban's Abbey Church. If we turn to the pages of illuminated manuscripts we shall find views of towns in which whole houses are decorated with masses of colour on the outside to distinguish them from their neighbours. And in rather later times, as we see in Florence, in Brescia, at Augsburg, at Meran, and often elsewhere, most brilliant effects were produced by painting subjects on the external walls of palaces and houses. But, generally speaking, beautiful as this sort of decoration was, it erred rather in ignoring to a considerable extent the architecture which it adorned,—unlike the earlier works where the effort of the colourist was usually and rightly to make all the mouldings or members of the work decorated more distinct and intelligible than they can be in the absence of colour. Without coloured illustrations of an elaborate description it would be impossible to explain any or all the features of architectural polychrome. But enough has been said to show that the subject is one not only of interest to architects, but of importance to all who care for architecture, for it is hardly possible that works such as those which have here been shortly referred to should be passed over by the student or amateur of architecture, as though they had no interest for us, and it may be confidently asserted that modern schools of architecture cannot with safety ignore so interesting a development of the art. A. T. S.

THE RESTORATION OF TWO HISTORIC BUILDINGS.

The architectural interest of the palace which the Christian-persecuting Emperor Diocletian built in his native province of Dalmatia, at Spalatro, or, as now more generally called, Spalato, on the now deserted Adriatic coast, is familiar to all members of the profession. Only very recently Professor Freeman, in his learned work on the "Neighbour Lands of Venice,"—reviewed in these columns at the time of its publication,—devoted a considerable share of attention to this sadly-ruined relic of Classic art, and the position it occupies in the development of modern architecture. Buried in a remote part of the world on the further shores of the Adriatic, the palace built by Diocletian is rarely visited by any but the most enterprising travellers. At all periods, situated in the half-deserted, wild border-land between the east and the west, ruin and neglect have, generation after generation, crept over the pile in the sixteen centuries of its existence. The work of time has, however, of late begun to tell cruelly upon its stones, and the Austrian Government not long since, consulted on the question of the restoration of one of the most interesting architectural relics of the Empire unhesitatingly gave its consent. The works are, it would appear, now progressing favourably, as we gather from an interesting lecture delivered a few days since at Vienna in the rooms of the Œsterreichisches Museum, by Professor Alois Hauser, entrusted by the Minister of Public Instruction with the restoration.

The first work undertaken was to repair the original mausoleum, now the cathedral. This is a domed building, in shape octagonal exteriorly, circular interiorly; the cupola, it may be mentioned, differs from that of the Pantheon in having no central opening. As the lecturer pointed out the work would not appear to have been executed by Romano-Italian masons, but by Orientals, perhaps Greeks, since the masons' marks are all in Greek characters. The transformation of the mausoleum into a church greatly injured the building, though a large element of artistic grace was undoubtedly gained by the addition of the beautiful Romanesque pulpit and the rich doors. Further injuries to the pediment were also caused by the erection in the thirteenth century of the Romanesque tower. In the restoration, however, the double character of mausoleum and cathedral has been rigorously retained. With the restoration of the building, Professor Hauser urges the necessity of the isolation of the cathedral from the various huts and other parasitical excrescences which in the course of centuries have grouped themselves picturesquely round the central pile, a measure which, fully carried out, would unquestionably bring to light a great deal of antique work at present hidden from the eyes of the restorers. The restoration of the interior of the building also urgently required attention. With this view the cathedral was closed two years ago. It would appear that this measure caused no small amount of local bad feeling, the great *festa* of St. Doeno, which takes place in June, being thus interfered with. The authorities, however, were fully able to explain their reasons for closing the church on the score of the danger to the public arising from the ruinous condition of the interior, large pieces of cornice and plaster constantly being detached at the slightest shock. The material employed for the restoration,—which, it will be seen, has not been com

menced a day too soon,—is a fine-grained limestone, much resembling marble in texture. The only Roman window (above the entrance), found walled up, has again been opened, and the director of the restorations holds out the hope that by next year the whole will be entirely completed. The restoration of the Romanesque tower will, however, take longer than was at first calculated, as, in consequence of its ruinous condition, the two upper stories will have to be pulled down and rebuilt.

At the very opposite end of the vast Austrian Empire in picturesque Prague, which bears so well the religious traditions which connect the capital of Bohemia with the stirring early days of the Reformation, when Huss and Jerome and Ziska prepared the way for Luther, it has been decided that one of the oldest memorials of the city, the *Altneusynagoge*, shall at length be restored. Buried in the labyrinth of the Ghetto of the Bohemian capital, this hoary monument, shrouded in the dust of ages, might well pass with the unitiated as in reality founded, according to the tradition, by the Jews who fled from the terrible destruction of Jerusalem. The professional critic, however, sees in the Altneusynagoge of Prague a Gothic thirteenth-century building, though it is more than possible that the foundations may be of much greater antiquity. The decrepitude of the pile has at length, it would appear, aroused the attention of the experts, and in spite of the outcry of the synagogue authorities at the threatened sacrilege, a complete examination has been made of the interior,—an examination which, in addition to revealing the urgent necessity of repairs, has brought to light a number of most interesting, and till now entirely unknown, details of the interior decoration, concealed under a thick crust of dirt, dust, smoke, and thousands of cobwebs which had gathered during centuries on the walls and vaulting. Tradition for generations has venerated this brown grime as the blood-stain left by the terrible massacre of the Jews which took place in the synagogue in 1389. The examination recently made has revealed that the vaulting was originally richly painted, numerous inscriptions in ancient Hebraic characters having been brought to light. The carving of many of the capitals reveals a wealth of beauty hitherto unperceived; the sculpture of the flowers and fruit represented being described by the commission as indication of a refined study of nature on the part of the unknown artist who executed these long-concealed treasures of Gothic art. Several interesting and early windows have been discovered, together with numerous other interior details, all of which have been photographed. At the close of last year a further meeting of the authorities was held, when it was determined that the restoration should be forthwith commenced; the necessary repairs to be first executed, but all restorations to be strictly in accordance with the original design. The high-pitched shingled roof will, when the weather permits, be removed, and carefully restored.

From the appearance of the works of the antique Pulverthurm, and the Prague Cathedral, both at present undergoing the process of restoration, the artistic public seem to feel assured that the repairs to be executed in the old Jewish synagogue at Prague will be faithfully and honestly carried out.

VITRIFIED BUILDING.

IN an article on "Earthen Monoliths," and in relation to the discoveries of Dr. Schliemann and his interesting statements as to the vitrifying of buildings *in situ* which had been built with unburned bricks, we expressed a wish that some of our archæological readers might furnish us with some British instances of a reliable character of early date in which vitrification was adopted. We alluded to statements made to us, and to the mention of brick or earthen structures which were said to have been vitrified *in situ* in Scotland, but in recent works of a respectable character, and wherein one might expect to find some details of these vitrified buildings, no particulars are given of them. We find, however, in casting about, that towards the close of the last century the subject of early vitrified structures or forts was attracting notice in Edinburgh and also on the part of some of the members of the Royal Society in London. In 1777 Mr. John Williams, mineral engineer, published a pamphlet, and in the same year transmitted a paper to the Royal Society of Antiquaries, London, by Dr. James Anderson, of Monkshill, giving an account of certain vitrified materials on the tops of several hills in the highlands of Scotland. These gentlemen are all agreed in believing that the materials in question are the remains of fortifications, and that their vitrification was produced by fire employed by the builders for the purpose of cementing their component parts. The Bishop of Derry and a Mr. Thomas West, on the other hand, considered these as vestiges of an ancient volcano. As many of the theories of the mere literary antiquaries of the last century were fanciful and conjectural, it need not be wondered that the subject of the Scotch vitrifications gave rise to much difference of opinion. Several members of the Royal Society who examined specimens of the burnt matter pronounced them real lava, while Mr. Andrew Crosbie, a member of the Royal Society of Edinburgh, supposed this so-called lava and the whole of one of the hills to have been thrown up from the bottom of the sea by the operation of intestine fire.

In 1790 came forward Mr. Alexander Fraser Tytler, F.R.S., Edinburgh, to settle the matter from his own point of view, his curiosity being excited by the different opinions of those alluded to above. Mr. Tytler, according to his own statement, examined several hills where these extraordinary vitrified structures existed, but his ambitious paper chiefly relates to Craigh-Patrick, near Inverness. There is no special mention of brick materials, or prepared earth or moulded clay in connexion with the Craigh-Patrick vitrifications as viewed by Mr. Tytler. The stone and that of the neighbouring hills is said to be composed wholly or in part of the same materials, but do not exhibit any appearance of the effects of fire. The stone is described as a "mixed mass of differently-coloured granite, greyish or speckled quartz, and the common white quartz. Unlike the volcanic tufas, it contains neither pumice nor burnt matter, but undergoes a total change, and suffers an imperfect vitrification when exposed to fire." There were no basalts found in the vicinity. In respect of the vitrified matter forming the outer wall, Mr. Tytler asserts that in no place was there a complete fusion. In referring next to some of the hills mentioned by Mr. Williams he observes that the marks of vitrification seem inconsiderable in number compared with those that have not been at all affected by fire. He infers from this circumstance that the partial appearances of vitrification are not proofs of an ancient mode of building, in which fire was employed as a cement, but its accidental effects on the structures composed of combustible and fusible materials. We next come to the theory put forward. Craigh-Patrick and other hills are stated to be composed of stone that could not be quarried in square blocks, but breaks into irregular and generally small fragments. Hence, in his opinion it would be very difficult to form with such materials alone a regular structure possessing sufficient strength, and it is conjectured that the mode of raising a rampart in such a situation was by driving a double row of stakes warped across by boughs of trees, laid so closely together as to confine the materials such as wood, earth, and stones of all kinds and sizes, which might be collected and thrown between them. Against a building fire would be the most formidable engine of attack, and if employed at a time when there happened to be a wind to increase the heat, the stony parts would necessarily come into fusion and produce a mass of vitrified matter, marking the situation of the rampart. It is conjectured that these fortifications must have been erected in Scotland prior to the Roman occupation in the northern parts of the island, and were evidently reared when mortar was unknown. Now, whether these structures afford proof of an ancient mode of cementing stone by vitrification, or arise through accidental circumstances, must be more fully debated. Accidental causes might, and would, produce in some cases the appearances described, but the vitrification is too general to be accounted for in this way.

In none of the various pre-historic structures of Ireland, nor in the early Christian ones, are there any evidences of vitrification. Stones of various shapes and sizes were used, many of a Cyclopean character, but thickness of masonry and close-fitting of the stones compensated for the absence of mortar or other cementing material. The round towers all show that mortar and grout were used in their construction; but the period of their erection, and whether Pagan or Christian, is a still debated question. If these towers are of Pagan date, as some able and practical archæologists and architects have contended, then in that case the dry-wall masonry structures must be pushed back to a still more remote era. The raths and other underground structures, though earth ramparted, were all internally and below of stone. There are no early burned or unburned brick buildings in Ireland; indeed, brick construction in that country is of very late introduction. The Romans employed mortar in their buildings, and the craftsmen of their legions in England and Scotland did the same, but no Roman legion ever set foot on the soil of Ireland. Scotland has always been characteristically a stone building country, and the same may be written of the North of England, Wales, and Cornwall. Vitrification then, if it ever obtained to any extent, must have been in pre-Christian times, or at a time when the art of quarrying and cutting stone for building uses was in a very crude state in those countries. Future excavations and archæological discoveries in the British Isles may afford us more light on a very debatable question. There is no more reason to doubt that beneath the soil of Britain there are buried towns and buildings, than to doubt that sites exist below sites in Greece and Rome, rich in treasures of the long past. There have been waves of civilisation and barbarism succeeding each other in the history of man and the rise and fall of nations and races.

LYCIAN ANTIQUITIES.

PROFESSOR BENNDORF, the discoverer of the valuable relief sculptures of Gyolbashi, recently gave a lecture upon the results of his Lycian explorations to the members of the Scientific Club of Vienna. Referring to the nature of the country where he carried out his explorations, the Professor said that Lycia, situated in the south-west of Asia Minor, was like the southern part of Tyrol, a bald, rocky region, which formed a plateau 1,800 ft. above the level of the sea, with hills rising 600 ft. higher. For centuries the country has formed part of the Turkish Empire. It is very thickly peopled. The pursuits of the population are chiefly pastoral and agricultural, but the people are very indolent and poor. More than 2,000 years ago this mountain plateau was inhabited by a far superior race. Somewhere about the end of the fourth century before Christ, a Lycian monarch, whose name is unknown, erected there a mausoleum of extraordinary magnitude. There were four strong outer walls, built of large blocks of masonry, each wall being 24 mètres long by 5 mètres in height. They enclosed a donjon-like structure, in the middle of which was a colossal stone sarcophagus, nearly 10 ft. high, and completely covered with sculptures. There is no doubt this formed the burial-place of the Lycian royal family of the period. The entrance was a massive gate, ornamented with oxen's heads. The inner sides of the walls of the enclosure are ornamented with two rows of reliefs, the one fixed immediately above the other. They were 100 mètres in length, and represented scenes from Homer's "Odyssey" and the huntsman and warrior life of Ancient Greece. The ground on which stood this royal tomb is covered partly with large stone ruins, some of them being sarcophagi broken up, and partly with disintegrated rock and wild underwood.

About forty years ago Herr Schönborn, a schoolmaster of Posen, was travelling on the rocky plateau of Lycia, and, losing his way, happened to stumble across the very spot where were the ruins we have mentioned. He immediately recognised the importance of the relics he found there, but he never published any description of what he had observed, and his diary has unfortunately been lost. However, he had given an oral account of the remains to the celebrated geographer, Professor Ritter, who sent a short notice of them to an English periodical. In this communication the latter gentleman failed to mention the precise locality where the relics were found. At a subsequent period Professor Ritter repaired this omission, and in his great geographical work he fixed the spot where these architectural remains were to be seen. Professor Benndorf, on reading Ritter's account, determined to visit Lycia and

inspect the relics for himself. He was only able to carry out this intention two years ago. To his delight, he found the account correct. The sculptured rocks were all there intact. He took a number of sketches and photographs, which he brought home to Vienna. His account excited much interest in Austria, and a number of noblemen and gentlemen, particularly Herr Nikolaus Dumba and Count Edmund Zichy, collected the necessary funds for fitting out an expedition, which proceeded to Lycia last year, and after five months' work succeeded in obtaining these treasures of antiquity for the Austrian capital. Professor Bendorf, who conducted the expedition, mentioned that in that rocky wilderness there is nothing to be met with in the way of civilised conveniences. There is not a cart to be had. There is no shelter. There is nothing to eat. There is, in fact, nothing at all but what the traveller takes with him. The Austrian party had to construct a road from the Mausoleum site to the seashore, —a distance it took four hours to travel over. The sculptured stones that have been brought to Austria filled 167 cases.

The remains consist mostly of massive stone blocks, and they had to be loaded and unloaded seventeen times between the place from which they were sent and their ultimate destination. The explorers had to construct a wooden jetty extending from the shore over a sand bank before they were able to get them on board the vessel which by the liberality of the Austrian Lloyd Company was placed at their disposal for the purpose of conveying them to Trieste, in Austria. And now these unique remains are in Vienna, except the reliefs above the gate and the huge stone sarcophagus, which the Government will probably have to find the means of fetching. In spite of being more than 2,000 years exposed to the influences of the atmosphere, and in spite of all the difficulties of conveyance, all except a few fragments have arrived well preserved at the Austrian capital, where they will soon form a distinguished ornament of the Museum. The sculptures themselves, as already mentioned, represent scenes from Homer, especially Meleager and his companions hunting the great boar of Calydon, and the seige of a city. They are in two rows, and excellently executed. Above is the king on his throne, and the queen with her slaves. There are priests in the act of sacrifice and imploring the gods, courageous defenders of the menaced walls, and other figures. In the lower series are the assaulting party in relief, powerful warriors attacking the gates of the city. Next comes a battle of the Amazons; then Ulysses returning from his wanderings and taking the suitors of Penelope by surprise. The hero is represented aiming with his bow at the intruders, who are protecting themselves with garments, stone tablets, shields, and so forth, while Telemachos is assisting his father, and the goat-herd, Melanchos, is taking to flight.

The style of execution and many of the details justify, with tolerable certainty, the assumption that these sculptured works, which originally were probably painted, were produced about the close of the fifth or beginning of the fourth century before Christ. Their author was probably Polygnotus, one of Phidias's disciples, whose creations breathe the true Homeric spirit. The works, through their pure and noble style, irresistibly remind us of the grand reliefs of the Parthenon and the brilliant Classic age of Pericles, as well as of Alexander the Great. They form a worthy counterpart to the results of Dr. Schliemann's excavations at Troy and Mycenæ, and likewise to the altar of Pergamos. They form a pictorial representation of ancient Greek life, such as for completeness is without a rival.

The Duke of Wellington's Statue.—The First Commissioner of Works proposes to appoint a committee to inquire into and report upon the subject of the most eligible site for the statue of the Duke of Wellington, now being removed from the place where it has stood for thirty-seven years at Hyde Park Corner. The following have agreed to form the committee:—Viscount Hardinge, Sir Frederick Leighton, Mr. James Fergusson, Mr. Boehm, Mr. Mitford, and the Duke of Wellington. The sites which will be chiefly brought under consideration are,—a spot within the new grounds now being laid out near Hyde Park Corner; a position in St. James's Park, opposite the Horse Guards; and one in Hyde Park opposite the Knightsbridge Barracks.

ABOUT BUILDING WOODS.

The first importations of foreign-grown building woods to this country marked a new and distinct era in the employment of timber as a constructive material.

The early arrival of foreign building woods first reached us from Russia, and they came over in such limited quantities that the vessels which conveyed them across the Baltic were usually loaded to the extent of at least three parts of their carriage capacity with linseed or some other commodity. How far the importation has since then progressed may be best inferred from a reference to the following table, which shows the extent of last year's exportation from the wood-growing countries abroad to the United Kingdom:—

	Loads.
Norway and Sweden	2,022,472
British North America	1,292,663
Russia	1,160,050
Germany	224,205
Other Countries	835,756
Total	5,535,146

Any notes relating to such a widely-used constructive material as wood can hardly fail to be of general interest.

It may be remarked that there are in the United Kingdom 118 ports into which foreign building timbers are imported, and to illustrate the important position which London occupies as a timber port, it needs only to be said that during 1882 London alone received 1,404,793 loads, or, in other words, more than a fourth of the total quantity imported into the United Kingdom.

The early importations of foreign building woods consisted mostly of hewn logs, which were upon their arrival into this country converted into the required shapes by the slow and laborious process of hand-sawing.

The sudden and enormous development which has in recent years occurred in respect to wood-working machinery must assuredly be recorded as one of the most striking outcomes of the nineteenth century. No invention, perhaps, has met with more strenuous opposition in his time than the wood-working machinist, and few have been ultimately more successful in the realisation of their hopes, for not only do we find to-day the workshops of our towns and cities amply supplied with wood-working machinery, but we see the latest and most approved types in constant employment even in our villages. The advantages which modern wood-working machinery has conferred are simply enormous, for by its general use we have seen the joinery work of dwelling-houses so far cheapened that in the dwellings of our artisans can now be found conveniences and advantages with which their ancestors, who occupied a far higher social position, were totally unprovided.

In the early days of the importation of foreign building timber, native woods competed with it for supremacy or rather struggled to prolong existence. The issue of the struggle was not, however, long in declaring itself for the foreign material, possessing every requisite, with superabundant advantages, soon ousted out its rival from the arena of competition. Its use once firmly established the extent of its employment progressed with astonishing rapidity.

It has been a marked feature of the wood trade that the modern builder has required his material almost every year more in a converted shape, *i.e.*, as nearly fashioned ready for use as circumstances rendered permissible. Content in the early day to receive the hewn logs and slowly to fashion them into deals, battens, scantlings, or boards, he now requires each of these articles ready produced, and, save when required for weight carrying or other purposes, rendering large squares indispensable, he has insisted upon having his material converted to the nearest possible shape finally required. At the present day we see this desire emphatically expressed in the ready demand for foreign-made joinery work, and for sizes of sawn wood with which the builders of a quarter of a century back were totally unacquainted.

It will be a matter for satisfaction for those who appreciate good work to know that it is almost the unanimous opinion of wood-dealers that the days for importing wood of common quality are practically gone by. The tendency to use superior material, or rather the disinclination to make use of very inferior, appears to be quite a modern one. The early importation of building woods consisted mostly of sound and good qualities, perhaps for the sufficient reason that the cost of conveyance was such as not to warrant the bringing over of inferior kinds.

Some ten or fifteen years ago, however, and some time after the abolition of the timber duties had made way for largely increased importation, and as architects have many a time most bitterly complained, a class of material was largely imported of such a quality as barely to carry with it the designation of being merchantable material.

During some years the wood markets were flooded with shipments of this most undesirable stuff, which, of course, very largely found its way into the common tenement property put up in all parts of the country by the so-termed "jerry builders." The extensive weedings-out, however, of these traders, and the unsatisfactory results which attended their doings, rendered the continued importations of the very inferior building woods quite unprofitable to the importing merchants, and this circumstance in conjunction with the repression placed upon the business when architects superintended the conduction of the work, appears to have acted in finally closing the importation. That building wood is to-day used of an all-round higher quality than the average of that employed in comparatively recent years is quite certain.

Concerning the use of the early importations of building woods, no circumstances are more interesting than those which relate to the consumption for flooring-board purposes. The matter of laying floors appears to be one which has to the present time been undergoing almost continuous modification. Years ago a wooden floor was regarded as one of the luxuries of the time, and the greatest care was exercised for the production of that then considered perfection,—a clean floor. Boards were selected as free as possible from knots, and some of the early wooden floors were made of boards carefully selected for the straightness and beauty of the grain of the wood. It was then, for the making of better-class floors, the custom to cut up logs of about 9 in. to 11 in. square, and so carefully were the boards cut that frequently a third of the log was discarded as being of insufficiently good quality for the purpose. These logs ceased to be imported when the Norwegian mills commenced to ship prepared flooring-boards. The desire to secure boards of strongly-marked grain carried with it the disadvantage that the coarse fibre was prone to wear into splinters, and not a few serious accidents arose out of the fashion which prevailed.

It is a somewhat remarkable circumstance that coloured, or what are termed "fancy woods," should be sent over fashioned in the same way, *i.e.*, in the shape of hewn logs, as they were at the time when they were first imported into this country in the Elizabethan period. Nay, if anything, the form of manufacture has receded rather than progressed, for we learn that when Sir Walter Raleigh, struck with the beautiful colour and grain-marks of some mahogany which he came across when on a voyage to the West Indies, brought some samples over for his royal mistress, the wood was already sawn into planks.

And whilst treating upon "fancy woods" it may justly be remarked as a matter for surprise that so little attention has been paid to the seeking out of coloured woods for cabinet purposes. The various trees of the rich tropical forests of Central America are to be counted almost by the hundred, and yet we see the general consumption of cabinet woods restricted to some few varieties, such as oak, mahogany, rosewood, ebony, satinwood, &c., including the wood which has recently met with such great favour,—American walnut. The early importation of "fancy woods" has been added to but little, so far as additional varieties are concerned. Yet the increased desire for superior building woods is pretty certain to finally take the direction of making "fancy woods" more popular for better class joinery work, and when this innovation has become completely established, we shall without doubt find a desire spring up to secure woods of

"Various hues and kinds."

A remarkable circumstance of modern times relating to building woods has been the sudden popularity attached to pitch-pine, which not many years ago was almost contemptuously despised by architects. This suddenly-acquired popularity is to be accounted for by reason of

the increasing difficulty of procuring large-sized Memel logs, and the large size and wonderful cheapness of pitch-pine. Nor are size and cheapness the only qualities which recommend its employment. Pitch-pine,—more than, perhaps, any foreign-grown building wood,—is remarkable for its uniform good quality. This reputation it has had established for a number of years, and the pitch-pine shipments of recent years have been, if anything, superior to those of former times.

Referring back to a consideration of the modern liking for wood converted into a shape as nearly as possible ready for immediate use, the conviction appears with much force that this is the distinctive feature of the present time. We find to-day that, not only does foreign timber reach this side in abundant quantities, sawn into deals, battens, boards, and scantlings of all convenient sizes, that immense importations of first-class joinery work reach us annually, but that the minutiæ of woodwork articles,—such as slate-laths, plaster-laths, trellis-work, and even down to the unassuming broom-handles,—are abundantly supplied to us, all of foreign manufacture. This fact already points to the advantage which has been expressed in employing specially-constructed machinery for the doing of particular kinds of work.

THE NEW STREET FROM PICCADILLY TO BLOOMSBURY.

"The first of our society is a gentleman of Worcestershire, of an ancient descent, a baronet, his name Sir Roger de Coverley. . . . . When he is in town he lives in Soho-square."—STEELE, *The Spectator*.

THE more frequented thoroughfares of modern London afford little occasion or opportunity to those who care now and then to summon up to the sessions of sweet silent thought the remembrance of things past. But turning aside the while, a slight effort of imagination may conjure up for them many a picture like to that of Sir Roger passing through New Inn exactly at five, and crossing through Russell-court to take a turn at Will's before the play begins. It is they, then, who will follow with interest the course of the demolitions for the new street. And these, indeed, are of no ordinary importance. Extending from St. James's Piccadilly, to St. George's Bloomsbury, the Board of Works' project traverses the parishes of St. Anne Soho, St. Martin-in-the-Fields, and St. Giles. Already the southern side of Coventry-street is pulled down, Newport Market and its immediate vicinity have disappeared. With Coventry-street was removed the oldest tobacco-shop in London, opened (on the site of Piccadilly Hall) by Mr. David Wishart the same year that Prince Charles Edward was born. His sign of the Highlander Thistle and Crown referred to the claims of the Stuarts, whose adherents frequently assembled here. Wishart was the first to place a figure of a Highlander at his door, and at the doors of retail dealers whom he supplied, in token of such houses being identified with the Jacobite cause. Next to Wishart and Lloyd's Highlander in point of age is that at No. 128, Tottenham Court-road. To this street Henry Coventry, son of the Lord Keeper Coventry, and himself Secretary of State to King Charles II., gave a name. Newport Market is called after the mansion, since rebuilt as Grafton House, of Mountjoy Blount whom King Charles I. created Earl of Newport. William Cavendish, third Earl of Devonshire, died at Newport House in the year 1654, when it passed to other hands. Here Horne Tooke's father, a poulterer, whom his son described as a "turkey merchant," had the memorable dispute with the household of Frederick Prince of Wales about the making of a way from Leicester House to Newport-street, through his back premises in the market. In the result, as the late Earl Russell proudly enunciates in his "Essay on the English Constitution," the "tradesman of Westminster triumphed over the heir-apparent of the English crown, and orders were issued for the removal of the obnoxious door." By the public-house in Prince's-row was the last of the slaughter-houses that survived the Public Health Act of 1849.

Soho commemorates the watchword of "King Monmouth's men," at the last fight deserving the name of battle that has been fought on English ground; St. Giles's-in-the-Fields the name of the abbot and martyr, patron saint of those sufferers for whom a hospital was founded here by the beneficent consort of a Plantagenet king. Soho Fields* was rapidly covered with the town mansions of our great families, in their migration westwards from the City after the Restoration. Towards the close of King Charles II.'s reign Southampton (Bloomsbury) square and King's (Soho) square formed favourite localities with the wealthier and more fashionable classes. Foreign princes were carried to the former, as one of the wonders of England.† On the southern side of Soho-square, first built in 1681, Wren erected for its most popular inhabitant a mansion, whose hideous exterior belied the beautiful adornments within. Of the square in which Monmouth, Evelyn, Burnet, and the Earls of Stamford and Carlisle once lived, Nollekens, whose childhood was passed in the neighbouring Dean-street, says he can remember "there were no fewer than four ambassadors in Soho-square, and at that time it was the most fashionable place for the nobility." Though its inhabitants have long ceased to afford evidences of this earlier settlement, numerous tokens remain of another migration hither which followed upon the revocation of the Edict of Nantes in 1685, three months after Monmouth's execution on Tower Hill. To these emigrants succeeded others, who, fleeing from the Reign of Terror, trafficked here in glass-making, jewel-setting, with the like fine arts, then little practised in this country, and in later days those who would establish a commune in their own fair capital. Our readers are familiar with the French aspect of Soho, especially in its southern limits. Maitland, writing 150 years ago, says that many parts of the parish of St. Anne (see *infra*) so abound with French that a stranger could easily imagine himself to be in France. Hogarth, in his "Noon," paints a group of refugees leaving their church in Hog-lane (now Crown-street). The Swiss Protestant chapel in Moor-street stands upon the site of an old pillared building which was termed the "French Exchange." A *salon des étrangers* has been opened in Greek-street by the London City Mission.

Contrary to general belief, "Soho" dates from a time anterior to the Duke of Monmouth's birth. It occurs in the rate-books of St. Martin's-in-the-Fields at least as early as the third decade of the seventeenth century. Moreover, the "Brick-kilns near So-hoe" are mentioned therein under date 1636; the Commonwealth Survey of 1650 speaks of Shavers' Hall as "lying between a roadway leading from Charing-cross to Knightsbridge west, and a highway leading from Charing-cross towards So-hoe." The fields were so much built upon by 1675 that a separate receiver took the rates of this part of the then parish of St. Martin, and his book was called the "Soho book."‡ The whole of Soho formerly stood within St. Martin's-in-the-Fields. That parish, having existed from a remote period, but without a church of its own, was in this respect rendered independent of St. Margaret's, Westminster, in the year 1535 by King Henry VIII. Taking umbrage at the funerals which passed the windows of his newly-acquired property at Whitehall on their way from the one parish to the graveyard in the other, he caused that church to be built which, in 1721, gave place, at a cost of nearly 37,000*l.*, to Gibbs's present structure. From the original parish which, albeit of wide extent, contained less than 100 inhabitants when first rated to the poor, *temp.* Queen Elizabeth, there were taken out the following at the dates given: St. Paul's, Covent-garden (1638), St. James's, Westminster (1684); St. Anne's, Soho (1686); and St. George's, Hanover-square (about 1720). St. George's, Bloomsbury, was taken out of St. Giles's in 1730. Soho-fields were first granted to Henry Jermyn, Earl of St. Alban, by the trustees of the "Rose and Lily" Queen; then by King Charles II. to his son by Lucy Walters; and subsequently by King James II. to the Duke of Monmouth's widow. But in the spring that followed her husband's death the young Baroness Wentworth, of Nettlestede, was buried beneath the transept of the church at Toddington, Bedfordshire, the seat of her race. Her name, carved by his hand whom she loved too well, was a few years since still discernible on a tree in the adjoining park. A sumptuous mausoleum marks her resting-place; Monmouth lies beneath the communion-table of St. Peter's Chapel in the Tower,* and the last link that connected him with Soho was lately broken in giving the style of Dudley to the street that bore his name. Lord Bateman bought the house, in 1717 it became an auction-room (*vide* "Walpole's Anecdotes," v. 322), and some sixty years later Bateman's-buildings arose in its stead. The grant to the Bentincks specifies all the existing streets and courts, and from it we learn that Wardour-street,—built *circa* 1696 and, with Arundel-street, commemorating Henry, third Lord Arundell of Wardour, the steadfast adherent of King James II.,—was otherwise known as "Old Soho." Henry, fifth lord, married Elizabeth, daughter of the celebrated Colonel Panton, gamester, last proprietor of the gaming-house Shavers' Hall (Piccadilly Hall), who gave his name to Panton-street. Charles Lamb's enjoyment of strolling along Wardour-street as we know it on a summer's day is recorded by Leigh Hunt. Besides those already spoken of as having lived in Soho-square may be instanced Sir Cloudesley Shovel, who lay in state at Falconbergh House before interment in the southern aisle of West Minster; Lord Chancellor Macclesfield, and George, his son, president, in 1752, of the Royal Society; Alderman Beckford, in the now House of Charity at the corner of Greek-street;† George Colman the elder; and at No. 32 (the Hospital for Heart Disease), Sir Joseph Banks, together with his eccentric sister, famous for her three riding-habits,—Hightum, Tightum, and Scrub. At Carlisle House, on the eastern side by Sutton-street, town house of the earls of that title, Mrs. Teresa Cornelys, during the period 1763—1772, held her renowned concerts and masquerades, precursors of Almack's. Reduced by improvidence to selling asses' milk at Knightsbridge, the Heidigger of the age, as Walpole styles her, ended her life in the Fleet. Much of the house was taken down about eighty years ago, when the music-room became the Roman Catholic Church which Nollekens attended "on fine Sunday mornings." It contains a Crucifixion by Vandyke. Sutton-street and Falconbergh-court, with the Falcon Tavern, take their designations from Sutton Court, Chiswick, the home of the Falconberghs. At No. 20, lately D'Almaine's, a fine specimen of old domestic architecture, died Mary, Lady Falconbergh, Cromwell's daughter, leaving it with all else she could away from her husband's family. This stands between the "White House," whose assemblies were as popular, if not quite so select, as those of Mrs. Cornelys, and one, with ceilings by Angelica Kauffmann and Biagio Rebecca,—home in turn of a duke of Argyll, an earl of Bedford, and Speaker Onslow. In premises formerly occupied by the Storekeeper General, Soho Bazaar was opened in 1815 by a Mr. Trotter, to which family it still belongs. The central statue, of King Charles II., or of Monmouth, has been removed to a garden at Harrow Weald. Around the fountain at its base were figures of the Thames, Trent, Humber, and Severn.‡ Greek-street, built with Church-street *circa* 1680, is named after the Greek Church in Hog-lane; the first of that faith in London, consecrated in 1677. The curious inscription above its western door has been discussed and illustrated in our columns. Purchased by the Huguenot *émigrés*, and next used as a chapel, this is now St. Mary's Church in Crown-street; Hog-lane yielding in 1762 to the latter style, after the sign, not infrequent in this locality, of the celebrated "Rose and Crown" at the corner of Rose-street. About ten years since a northern aisle and spacious chancel were added to the original fabric. There has thus disappeared the view (commonly reversed in the engravings) of the east end, with St. Giles's steeple in the background, of Hogarth's

* In the conveyance (the 13th of May, 1700) by William III. to his *ci-devant* page of honour, William Bentinck, first Earl of Portland, they are set forth as including Kemp's Field, Bunches Close, Coleman Hedge Field, 220 acres; and Doghouse Field, or Brown's Close, 5¼ acres,—being nearly all the now parish of St. Anne, Soho.

† See the Travels of Duke Cosmo. King's-square was named after the builder of that name.

‡ Of Flaxman, who lived at No. 27, Wardour-street, 1781-7, J. T. Smith, in his "Life of Nollekens," writes:—"During his residence in this house he was chosen by the parish of St. Anne, in which he resided, as one of the collectors for the watch-rate; and I have often seen him with an ink-bottle in his button-hole, collecting the rate."

* See the *Builder* vol. xliii., pp. 645, 648 (November 18, 1882).

† See Walpole's Letters to Sir H. Mann, under date the 19th of April, 1770.

‡ This is the fountain of which Nollekens affirms the water would never run out of the river gods' jugs; and he would watch them, he adds, for hours together; but when the windmill was going round at the top of Rathbone-place.

picture. The tenements along two sides are the survivals of the almshouses built by Mrs. Graham and Sir Charles Cotterell, their foundation being attributed to Nell Gwynne, who lived at No. 38, Prince's-street, re-numbered No. 53, Wardour-street, shortly to be demolished.* The handsome son of a rich iron-monger,—one Buttall,—of Greek-street, lives in the "Blue Boy" of Gainsborough. In a miserable room at No. 2, Brewer-street, the Chevalier D'Eon closed his chequered career; at a mean lodging in Frith,—which, by-the-bye, Maitland calls Thrift,—street, Mrs. Inchbald wrote her "Simple Story"; and here Hazlitt lived and died. At No. 75, Dean-street, its staircase painted by him, lived Sir James Thornhill; his daughter Jane, who eloped with Hogarth, is said to be represented in the fresco; and at the house now Nos. 42 and 43, Francis Hayman, the renowned illustrator of "Don Quixote." Jack's Coffee House,—so called from John Roberts, a singer in Garrick's Drury Lane company,—became Walker's Hotel. Bishop Compton, dean of the Chapel Royal, is believed to have given names to this and to Old and New Compton streets,—the latter though may be due to the union of the third Lord Arundell of Wardour with a daughter of Sir Henry Compton.

We now pass to a quarter whose very title is a by-word and reproach. Until the Dissolution Queen Matilda's lazar-house lay in the "verie pleasaunt village" of St. Giles's-in-the-Fields, consisting of a few cottages around an old stone cross, with one or two shops whose owners' names and callings are preserved in the hospital grants as Gervase le Lyngedrap, Reginald le Tailleur, &c. The property being granted at the Reformation to John Dudley, Viscount l'Isle and Duke of Northumberland, he built himself a mansion over the hospital site, the vineyard degenerated into Vinegar-yard, and its chapel was converted into a parish church. This was rebuilt by Laud and consecrated, as he tells us in the "History of his Troubles," on the 23rd of January, 1630. But around that church which contained the remains of George Chapman, Charles II.'s "Trusty Richard," Shirley, Lord Herbert of Cherbury, and Andrew Marvell, sprang up a district whose notoriety had never been excelled in London. Furnished with numerous appliances, a gallows not excepted, for the punishment of evil-doers, an object of special regulations for its improvement by the Puritans, and nearly depopulated by the Great Plague, it supplied Hogarth, Smollett, and Fielding with fearful types of vice, destitution, and disease. In St. Giles's Hogarth places his supposititious "Gin-lane."† Tom Nero is a St. Giles's charity boy; it figures in the "Harlot's Progress," and in a St. Giles's night-cellar the Idle Apprentice, betrayed by his mistress, is arrested for murder. So long ago as the 1st Henry IV. the northern wall of the hospital garden was, with West Smithfield, a place for the execution of persons of high rank or guilty of crimes of unusual magnitude, such as heresy and treason: its victims including Babington and Sir John Oldcastle, Lord Cobham, with their accomplices and followers. At the hospital gate criminals proceeding to Tyburn would halt to drink a last bowl of ale with the hangman and guards. This unseemly custom, practised also at York, was subsequently observed at the Bowl,—afterwards the Angel,—Tavern (pulled down in 1873), by Bowl-yard, over against Clark's-rents, in the High-street. A Board school stands on the site of the Round House in Coal-yard, familiar to readers of Ainsworth's "Jack Sheppard." In the Coal-yard, says Oldys, Nell Gwynne was born, an honour that is also claimed for Hereford, the birthplace of Garrick. The plague broke out in Lewknor's-lane (Charles-street), Drury-lane, abode of Jonathan Wild, Summers, and other thief-takers, as of those whom Butler stigmatises in the couplet,—

> "The nymphs of chaste Diana's train,
> The same with those of Lewknor's-lane."

The rookery where the plague made such sad havoc was not abolished until the year 1849 upon the extension in a right line of Oxford-street to High Holborn. The old Uxbridge-road in this part ran along from Bury-place, then Lion-street, to the corner of Tottenham Court-road by what are now the western end of High Holborn, Broad-street, and High-street, St. Giles's. A profitable change to all concerned, since the Duke of Bedford received 113,000*l.* for his interest in the property. Over the Cock and Pye Fields Neale (see Neale-street), a speculative builder and introducer of lotteries into England, built Seven Dials with its convergent streets,* at the end of the seventeenth century. On the supposition that large sums of money lay beneath, his column bearing seven sun-dials at top was removed in July, 1773; it now stands surmounted with a coronet on Weybridge-green as a memorial to the Duchess of York who died at Oatlands. Famous for ballad dealers and ballad singers, the churchwardens' accounts of St. Giles's contain entries of small amounts paid on behalf of such long-forgotten worthies as "oulde Guy the poete," "Tottenham-court Meg," and the "Ballet-singing Cobler." To Seven Dials we owe the term "catchpenny," from an ingenious device of James Catnach, a ballad printer in Monmouth-court, to secure the sale of one of his broadsides. It is curious to observe that generally, as at Oxford, Winchester, and elsewhere, places dedicated to St. Giles were outside the town by reason of the leper hospitals with which they were connected.

* See the *Builder*, vol. xliii., p. 776 (December 16th, 1882).

† Dated 1751; the steeple of St. George's, Bloomsbury, appears in the background. The lines beneath, "Drunk for a penny," &c., were often inscribed upon tavern signs of the day. See the *Gentleman's Magazine*, February, 1736.

SCOTTISH REGIMENTAL COLOURS.

Such present owners of stands of colours as may be disposed to further the project of Major-General M'Donald's committee, might do well first to visit St. Paul's Cathedral. There they will find colours of the Coldstream Guards, and of the 57th (West) and 77th (East) Middlesex Regiments, hanging in dust, neglect, and decay: a condition which may be profitably contrasted with that of the several colours carefully preserved at Chelsea Hospital, and in the chapel of Wellington Barracks. As far as concerns our Highland corps, either Holy Rood Palace or Edinburgh Castle seems to be the most suitable place for a final deposit of the colours, over which,—though no longer to be carried into action,—"Auld Lang Syne" is regretfully played when exchanged for new ones by their respective regiments. At the Castle they would come within charge of the garrison; of befitting and responsible custodians at the Palace. Moreover, the capital offers this further advantage in that no local susceptibilities can be hurt in the choice of a city where, as it happens, no regiment, Scottish or otherwise, is localised under the existing territorial scheme.

MEMORIAL OF ROBERT BURNS, THE SCOTTISH POET, IN WESTMINSTER ABBEY.

A committee, having its head-quarters at Glasgow, resolved to raise a fund by shilling subscriptions for the erection of a monumental bust of Burns in Westminster Abbey. A sum of 370*l.* has been collected. The correspondence with the committee embraced letters from Southern Africa, Bengal, New Zealand, Canada, and other portions of the American continent; Switzerland, London, Edinburgh, Glasgow, and other towns in England and Scotland. The Very Rev. Dean Bradley has decided upon the site in the Abbey for the bust. It will be erected on the stone screen in the Poets' Corner, against and in front of the centre of which the monument of Shakspeare has been erected, in close proximity to the memorials of two of his brother Scottish poets, for in front of the screen, and immediately to the right of the Shakspeare memorial, is the statue of Thomas Campbell, and on the left the monument to Thomson. The Burns bust will be on a line with that of Robert Southey. It is intended that the bust shall be erected and unveiled on the next anniversary of the poet's birthday, January 25th, 1884. In the ambulatory of the Abbey, at the foot of Queen Philippa's tomb is the monument to Sir Robert Ayton, a Scottish poet, who received his knighthood from James I., and was, for some time secretary to Henrietta Maria, queen of Charles I. "One of the best poets of his time," says Aubrey; and Ben Jonson took pride in informing Drummond, of Hawthornden, that "Sir Robert Ayton loved him dearly." He is the first Scottish poet buried in the Abbey, and there is a singular link between him and the latest Scottish poet, of whom a memorial is to be placed in the same shrine. Ayton wrote the first version of "Auld Lang Syne"; this version Allan Ramsay adapted and spoiled with insipid conventionalisms. "Ramsay," writes Burns to his friend Captain Riddel, "here, as usual with him, has taken the idea of the song and the first line,—'Auld Lang Syne,'—from the old fragment." Burns knew not of Ayton, not even when he rendered the beautiful song of the latter,—"I do confess Thou'rt smooth and fair,"—into the Scottish dialect, without, however, improving it. Strange, that after the lapse of two centuries the aristocratic Scottish singer of courtly ditties, and he, his countryman, who sang the joys and sorrows of the lowly while "following the plough along the mountainside," should meet together under the roof of England's most hallowed shrine.

* Conf. Evelyn's Diary, October 5th, 1694.

THE NATIONAL MEMORIAL TO KING VICTOR EMANUEL.

The Roman correspondent of the *Cologne Gazette* recently described the principal features of the second competition for the above memorial, for which designs will be received until the middle of December, 1883. The site and relative dimensions are defined, as well as the general *motif* of the design, which is to be a combination of sculptural and architectural work. The site chosen is the northern slope of the Capitoline Hill, so that the figure of the king, with its surroundings, will form an imposing close to the perspective. The central point is to be an equestrian figure of the king, and the architectural background will more or less hide from view the buildings lying behind the structure. The third feature of the general design is the flight of steps leading to the portions of the work already mentioned, and it is remarked that this portion of the task will be rendered more difficult from the fact that there are so many notable models of that class of work in the immediate vicinity. It is curious that the choice of the site has afforded another instance of the preference shown to the more ancient part of Rome as compared with the newer portions of the city.

The invitation to compete is extended to the artists of all nations, but it is remarked that the action of the jury in the first competition tended to discourage the sending in of designs from other countries. It is considered by the correspondent of the *Cologne Gazette* that neither the honour nor the money for the work itself will be allowed to leave Italy. The sum to be spent on the work is about 360,000*l.*

THE POSITION OF ORGANS IN CHURCHES.

Sir,—I see that in Mr. Brewer's reply in the discussion on this subject at the Architectural Association, he said he did not approve of my suggestion of "a small transept" for the organ. I never suggested such a thing, and am quite aware that an organ should be kept as far from outside walls as possible. My idea was, the choir in the nave and the organ at one side of the nave, and I then added "or in a shallow transept," *i.e.*, a transept of little projection and considerable width, merely to prevent the organ taking up an inconvenient amount of space in the church by projecting too far towards the centre. The idea of building "a small transept" for the organ would be only a degree better than the organ-chamber, and certainly never had my recommendation. H. H. Statham.

A School for Carpenters.—The Visiting Committee of the schools at Mitcham submitted the report of the superintendent as to the cost of the second carpenter, from which it appeared that during the past year he had been paid 79*l.* 3s. 9d., and the work done realised 129*l.* 7s. 6d. After deducting the cost of the wood there remained a profit of 5*l.* 2s. 9d., besides the advantages arising from the boys being taught carpentering. Mr. Green moved that the report be approved. He considered it to be very satisfactory, and would be very glad if the members would visit the carpenters' shop and see how well the boys could use the plane, the saw, and other tools. Mr. Batchelder said the boys did a good class of joiners' work, doing their work well, and hoped the members would take more notice of the workshop when they visited the schools.

LECTURES ON ARCHITECTURE AT THE ROYAL ACADEMY.

IRON.

MR. GEORGE AITCHISON, A.R.A., delivered a lecture on Iron as a material for the architect, at the Royal Academy, on Wednesday evening last. We append the substance of his remarks:—

Mr. Aitchison commenced by saying that he proposed, in the two lectures which he had to deliver, to enlarge on the most important and the most interesting subjects he knew, viz.,—Iron and Colour. He treated of iron first because he felt it to be of paramount importance for the architects of the future to consider this comparatively new material. We were, he said, in the midst of the Second Iron Age, and if the first discoverers of iron were able to conquer the then known world by its means, the second great discoverers, the English, had through its aid been able to make as great but more peaceful conquests, and to endow mankind with powers only dreamed of by novelists and poets. Iron in one of its three forms,—cast iron, wrought iron, or mild steel,—was now one of the most important building materials we had, but, as yet, it had not been very completely brought into purely architectural use, except occasionally in the subsidiary forms of columns, bressumers, and girders. The great architects of the thirteenth century found brick, stone, and wood used much as they had been by the Romans, and the Romans were sound and even brilliant constructors, for though they had not the unerring artistic instincts of the Greeks they had a great capacity for producing splendid and magnificent effects. The Romans, however, had the tribute of the known world for their income, and armies of slaves for their work. No expense was spared on foundations, and daring feats of construction were not, in our sense, cramped by expense; but in all their flights thrust was opposed by mass. The architects of the thirteenth century,—the greatest innovators the world had ever seen, had neither the Roman wealth nor Roman means, and had to trust to their own skill and ingenuity and to that of their skilled workmen, to construct buildings rivalling those of the Romans in extent and sublimity, and absolutely original in form, detail, and ornament. To do this they revolutionised construction. Vaults were no longer uniform arches of great thickness, but the groin-points were turned into ribs, and the filling-in was of extreme thinness; and where thrust could not be counteracted by thrust, it was carried to the ground by series of flying buttresses and a wide-spread base of the last buttress. In their carpentry, too, the heavy tie-beam was done away with, and each slender rafter bore its own truss. Could we suppose that, if such a material as iron had been in their hands, as it is in ours, they would not have rivalled our engineers in constructive skill, and, at the same time, given new forms to their buildings and impressed on them new decorations? It has been too much the fashion amongst architects to decry our engineers,—the true children of the age, whose sole aim is utility; and yet, looking at their works from the constructive side of our profession, what can be more admirable? They have carried their constructive skill to a pitch that even the thirteenth-century architects might envy; and no man can walk down the vast nave of the Crystal Palace and see its filmy consruction and its flood of light without thankfulness and admiration; and if any regret mingles with its emotion, it is that the building's tenure of existence is almost as frail as the spider's web it rivals. Architecture, it is true, has, in the present day, fallen upon evil times, but no architect should shut his eyes to the signs that by slow degrees this insensibility is passing away and a faint and tepid interest is being awakened. But the position of architecture is not wholly due to outside influence; it is partly due to the retirement of its professors from the actual strife of the world. As he had pointed out in a former lecture, architects were inclined to pose as gentlemen and not as bricklayers. Roofs and domes were beneath their notice; they merely attended to the æsthetic part, and architecture had come to be looked on as a sort of potted art,—a delicacy for the *gourmet*, and not honest bread and meat for the multitude. Architects must free themselves from all this nonsense, and strive to be great constructors, doing what they can to impart character to our buildings. Passing on to consider minutely the materials with which he had to deal in the present lecture, Mr. Aitchison observed that cast-iron, wrought-iron, and steel are perfect materials, for, with the exception of the glazing, the whole of the structure may be made of each one of them, though practically their employment for certain parts of a building might be inconvenient. Iron can be cast into almost any form and enriched with almost any ornament. Cast iron is very strong as compared with other materials, and consequently takes up a small space, and particularly lends itself to the bony structure of a building, especially if the building be symmetrical. Its defects are that it rapidly transmits heat, and in damp weather horizontal pieces drip and vertical pieces stream with water. It melts in great heat, and if heated to redness and cooled by water it cracks. Its contraction and expansion under variations of temperature are considerable, and it rusts rapidly. Professor Barff's process is said to prevent rusting, but it is not practically in use. Iron may also be enamelled, but the cost is great, and the experience of its efficacy insufficient. Cast iron is difficult to cast in very long pieces, and ornament cannot be chased after casting. Its peculiarities are that it is very heavy; that it is, roughly, six times as strong in compression as in tension; and that unless its parts are of nearly uniform thickness, it tears on cooling; so that in the case of girders the lower flange must be six times as wide as the upper one. Patterns have to be made for each piece: hence there is a strong desire for repetition to minimise the cost of patterns. Wrought iron and mild steel might be considered together, as they were practically the same material, only one is stronger than the other. Their capabilities are less than those of cast iron in most particulars, but their tensile strength is much greater, being, in wrought iron, about 3½ times as great, and in steel five or six times as great. Both wrought iron and steel can be rolled into very thin plates, and these plates can be riveted together, so as to be of any length. The defects of wrought iron and steel are the same as those of cast iron, except that they rust more readily; and though they will not melt under the influence of great heat, they crumple up like wet paper; and they are susceptible of no kind of ornament or shaping, except at enormous cost. Their peculiarities are that they are mostly built-up,—*i.e.*, riveted together into the required form from plates, tubes, bars, L, T, H, and U pieces. As cast-iron is six times stronger in compression than in tension, and as much variation of thickness causes fracture in cooling, and we can rarely core the lower flange, there is a wonderful scope for ingenuity in trying to make a girder sightly. Again, in columns, every considerable swelling out,—as in caps, bases, or the lower parts of shafts,—is a source of weakness and danger instead of being an additional strength, as in wood or stone. All incised work is a fatal element of weakness, and if much relief is wanted in caps cast on to columns their ornaments have to be stuck on. Mr. Aitchison said he made no apology for treating of the natural qualities of the materials, for without knowing these it is impossible to design in them either with safety or propriety. Architects are, before everything, constructors, and paper architects are a mere burlesque,—even worse than sculptors without anatomy. To go further, it is the want of a thorough knowledge of the properties of iron and of the abstruse statical problems connected with its use that has condemned it to be so little used architecturally by architects. Two minds cannot act like one, and the scientific mind with no art, and the artful mind with no science, are apt to be like two horses pulling in opposite directions. The use of iron has restored the post and beam construction of the Greeks, and swept away the arches, domes, and vaults of Roman and Mediæval times. It is not that arches or domes cannot be made, but as there is no abutment the ribs must either be girders without thrust or be trussed or tied. From the energy of the material the proportion of voids to solids is so great that it is unusual and unpleasant to the eye, and from the small size of the supports where they do occur they tend to effacement. In fact, this may be said generally of iron,—that it tends to effacement. In proportioning the parts of columns our module must be something different from half the diameter when the columns are, not from eight to ten diameters in height, but from twenty-five to thirty diameters, or more. If we are to have old world ornament we must go to the bronze tripods and candelabra of Greek and Greco-Roman times, or to those fantastic structures found in the arabesques of Rome and Pompeii which so stirred the bile of Vitruvius. Iron, however, is absolutely untrammelled by any former scheme of design or of ornament. We want to analyse the causes that produce satisfaction or admiration in our minds when we look at a building, and having discovered them, to endeavour to apply the principles to the ironwork we have in hand. This knowledge will prevent us from going wrong, but we must be blessed with invention if we are to go right. It is, perhaps, not so difficult to make a structure slightly when we have cast-iron columns of any considerable size and cast-iron girders of inconsiderable span; but when the girders are of wrought-iron and of large span, the difficulty is considerable; for the girders then mostly take the form of a series of strung triangles, with lines at the top and bottom, or of lattice-work. Iron will not do for external walls, and if we use brick, stone, or concrete, the outside of the building ceases to show that it is iron construction. A feature might be made of iron in this way: between the main iron supports there might be thin iron ones, double-slotted, and filled in with earthenware slabs ornamented in colour; the black lines of the ironwork would then look well,—something like half-timbering on a small scale. A splendid hall ceiling might be made of cast-iron girders carrying smaller ones, so as to make small square panels filled in with red glazed earthenware domes, enriched with gold. Corrugated iron is absolutely unusable, in point of effect, except on a colossal scale; when it can be so used, the corrugations, that destroy all scale, where the size is small, merely give a texture, but we must then arrange for something to take off from its papery appearance where there are openings or overhanging roofs. Of iron buildings there are many, mostly of the corrugated iron type, as churches, schools, sheds, &c., most, if not all, simply hideous. Iron, like other materials, is apt to bear upon its face the impress of other forms of construction. The arch is frequently exhibited in it, though perhaps this is not more ridiculous than wooden arches or wooden vaulting. Gasometers are sometimes picturesque structures, and different examples show how iron may be used so as to be ridiculous and ugly, or appropriate and elegant. As an example of the former, you see a series of attenuated Roman Doric columns set in a circle, each column with its capital connected at the top by thin pierced cast-iron girders, occupying an inch or two of the middle of the projecting caps; but, occasionally, gasometers whose shafts are connected with iron ties are quite picturesque; and, latterly, the lecturer had seen a very elegant one, of which the standards were battered on the outside, and made of heavy wrought iron lattice-work, held together at the top and midway by very slight lattice girders. In England, we have three classes of people,—those of cultivated taste, who admire beauty and will not willingly do without it; those who pretend to admire beauty and do not; and those who neither like nor pretend to like it, and who shamelessly proclaim that beauty is all nonsense. Roughly speaking, the last class represents the age, more particularly so in regard to iron, because those whose architectural taste has been cultivated have cultivated it by the study of brick, stone, or marble buildings, and only look on iron as a makeshift, which they would not use if they could help it. Not that there is no elegant ironwork in England, for there were excellent bits here and there, as, for example, the ironwork to the glass domes of an office at the Bank of England, designed by Professor Cockerell, which, like all his work, is refined and elegant. In France and Belgium there is greater demand for artistic work than in England. The lecturer proceeded to speak of the essays made in those countries to develope the treatment of iron. Victor Hugo prophecied, after the event, that printing would kill Gothic architecture; pointing from a printed book to Notre Dame, he said: "This will kill that." Now hear the prophecy of another distinguished Frenchman, who echoes the words, "This will kill that," pointing from the cast-iron of the Central Market to the stonework of St. Eustace. "Iron will kill stone, and the time is near." Since the beginning of this century, only a single monument has been built,—a monument copied from nothing, and which has sprung

naturally from the soil of the epoch, and this is the Central Market of Paris,—a swaggering work if you like, but which is only a timid revelation of the twentieth century. Although the Halles Centrales seem admirably adapted to their purpose, and have, in fact, served as a model for markets in different parts of the world, the problem of the use of iron for architectural effect has not been satisfactorily solved by them. Some of the details are good, but the buildings themselves exhibit a flatness and uniformity very far from the lecturer's notion of architectural beauty, and the best part, the gutter on corbels, is spoiled by the corbels being of stone proportions. The arch that joins the two blocks is thin, and not very nicely proportioned. The interior effect of the galleries is spoiled by a regular succession of skylights in the roof, which mar any grand effect of light and shade. Inside each block, the central part is impressive from its size and height. Its circular arches, and open spandrels filled with strap foliage, and its open cross and panel work, do credit to M. Victor Baltard's skill. There are, however, two splendidly successful works of iron construction in Paris—the Northern Railway Station by Hittorff, and the National Library by M. Henri Labrouste. After describing the Northern Railway Station in terms of commendation, on account of its grand proportions, and the excellence of design shown in its ironwork, particularly in the columns,—observing, incidentally, that the columns bear the inscription, "Alston & Gourlay, Glasgow, 1862, British Ironworks," so that M. Hittorff found the brains although we found the labour and materials,—Mr. Aitchison proceeded to speak of the National Library as being as agreeable a room as one could wish to see. In the middle of the room are four most elegantly-slender cast-iron columns, bearing cross-braced wrought-iron arches, and from these spring nine domes with eyes at the top. The Fine Arts Schools, by Duban, has its entrance hall formed of cast-iron girders filled in between with cream-coloured terra-cotta arched and slightly enriched with a raised pattern. After M. Duban's death, M. Coquart had to cover the court to form a sculpture gallery, but was unwilling to touch Duban's work, so kept his few columns in pairs detached from the building, carrying the intervening spaces by iron cantilevers in the cornice. After incidentally mentioning the great extent to which bronze is used in Paris as a material for lamp-posts, railings, &c., the lecturer proceeded to speak of the Exchange at Antwerp, which has its central court covered in one span by wrought-iron trusses, and glazed at the sides, the collar-beam carrying a plaster ceiling. The wrought-iron bearers are treated after the manner of the wooden ones at Wollaton Hall. The constructional ironwork is so slight that it is almost lost, and to fill the vacant space and catch the eye, wrought-iron fruit and flower-work has been introduced. A vast building for the sale of drapery, close by the station of St. Lazare, and called "Les Magasins du Printemps," is now being built by M. P. Sedille. The whole interior construction is of iron, and each external bay is wholly of glass, the framework being of cast-iron, wrought-iron, and bronze, enriched by gilding, marble, and mosaic. It is worth study by architects visiting Paris. In conclusion, the lecturer expressed the hope that what he had said might stimulate his hearers to devote themselves to the architectural development of iron, the grand material of the future, with an ardour, a single-mindedness, and a self-denial that would not be in vain.

Mr. Aitchison will lecture on "Colour," on Wednesday, February 28.

THE EDEN THEATRE, PARIS.

A DESCRIPTION of this building appeared in our issue of last week, and we are now able to publish with our present number some sketches which will serve to render that description more clear. The sketches are only rough, as taken on a programme margin, and give no idea of the rich colour and play of light and shade which form such characteristic features of this theatre, but they may be sufficient to show how the architect has treated so difficult a style as the Hindoo, and applied it with such success to modern requirements.

The piece which is being played in this theatre, and which rumour says we may hope to see in London in a few months, is the great pseudo-scientific Italian ballet of "Excelsior," which, in a series of pictures, displays the triumph of light and science over obscurantism and ignorance. Steam and the electric light, Mont Cenis tunnel and M. de Lesseps, all play a part in the great spectacle; while the utmost perfection of mathematical precision is shown in the absolute accord with which the 500 dancers perform their wonderful gyrations. The finest picture of all is in the prologue, when the birth of light takes place amid crowds of angels with silver trumpets and wings which outrival the highest colouring of Filippo da Lippi. J. T. P.

ULM CATHEDRAL AND ITS RESTORATION.

To the internal view of the choir of Ulm Cathedral given in our last,* together with some particulars of its history, and the steps recently taken towards its restoration, we now add a view of the exterior of the choir.

BLACKMORE PARK.

THIS estate is one of the most ancient in the county of Worcester, and is situated about four miles from Great Malvern. It came into the possession of the ancestors of the family of Hornyold in the fourteenth century, and they have continuously resided in it since the time of Henry VIII. The present owner determined in the year 1861 to build another residence, and adopted designs furnished by Mr. David Brandon in the style prevalent in the latter part of the sixteenth century, upon a site in the park looking on to the Malvern Hills, situated about 200 yards from the existing one. This building contained no architectural feature of interest, except portions of an old oak staircase, which was preserved when it was pulled down.

The new mansion was finished in the year 1864, and continued the residence of the family until the early part of 1880, when, with the exception of the billiard-room and chapel, it was almost entirely consumed by fire, believed to have originated in a servant's bedroom; the external walls, built of bricks made on the estate, with Box-ground stone quoins, cornices, &c., were considerably injured, and the roofs and greater part of the floors, which were double-framed with main beams of iron, were destroyed; the corridor flooring, however, constructed of iron joists and concrete remained nearly intact.

We give herewith a plan and illustration of the building brought to completion last year, considerable alterations having been made from the original design; firstly, by the omission of the greater portion of the third story; and, secondly, by the addition of a north wing, containing a ground and first floor appropriated for sitting-rooms and bedrooms. The offices also were much enlarged and altered in the rebuilding.

The main approach is on the south side by a road leading to a *porte-cochère* and entrance-hall, from which corridors conduct to the principal rooms, which are mostly ranged on the south and west sides of the house. Their dimensions are as follow:—The entrance-hall, 31 ft. by 22 ft.; saloon, 47 ft. by 22 ft.; library, 30 ft. by 22 ft.; morning-room, 23 ft. by 22 ft.; business-room, 25 ft. 6 in. by 18 ft.; dining-room, 33 ft. by 23 ft.; billiard-room, 40 ft. by 18 ft. The principal staircase, 30 ft. by 26 ft., and 30 ft. 6 in. high, is divided into three flights, 6 ft. in width, and enclosed with an oak balustrade, with heraldic figures on the pedestals. The arrangement and dimensions of the other rooms and offices are sufficiently described upon the plan.

The first-floor contains a boudoir, sitting-room, nineteen bedrooms, including dressing-rooms arranged *en suite*, linen and store closets, bath-room, housemaids' closets, &c.; there is also upon this floor a corridor communicating with the chapel.

Servants' bedrooms are arranged on a third story, over the offices in the east wing.

The height of the ground and first floors of the main building is respectively 15 ft. 6 in. and 13 ft.; that of the new north wing and offices being somewhat less.

In the basement are wine, beer, and coal cellars, a muniment-room, a room for the heating apparatus, and other offices.

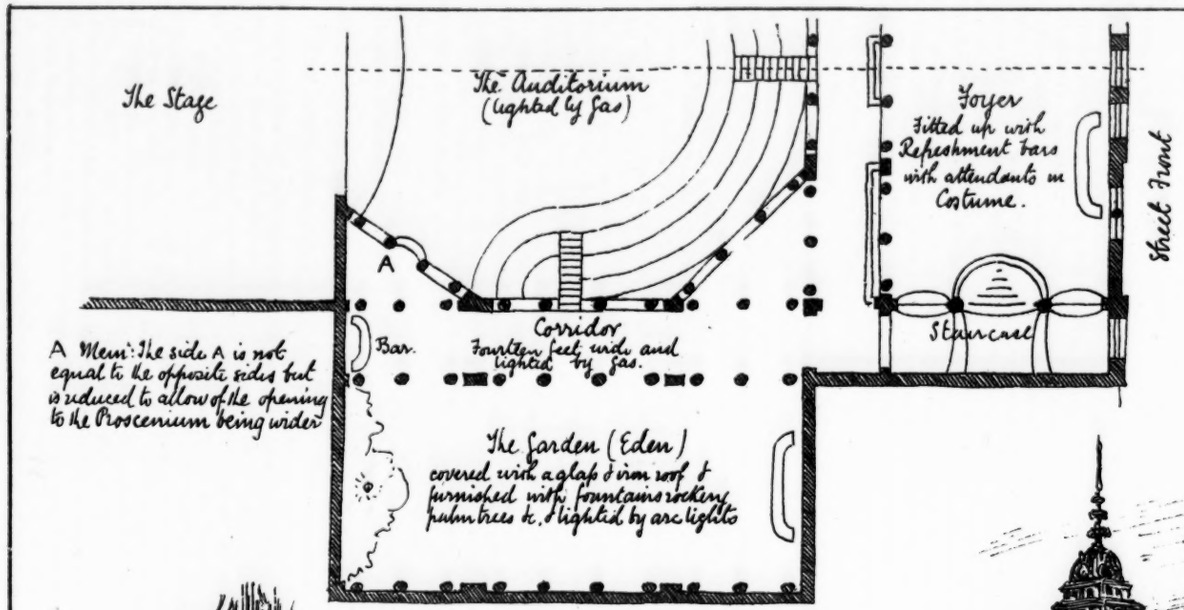
The original cost of the house was about 25,000*l*. The whole of the late work has been carried out by Messrs. Bromwich, Foster, & Co., of Rugby. Mr. Jenkins was the clerk of the works.

NEW STABLES, MAYFAIR.

ONE of our illustrations shows a portion of the extensive and well-appointed range of stabling which has lately been erected in Brick-street, Park-lane (adjoining Christ Church, Mayfair), for the Marquis of Londonderry, from the designs and under the superintendence of Mr. James Brooks, F.R.I.B.A. The buildings stand partly on the site of the duck-pond of the "Dog and Duck," a tavern which was the scene of much revelry in the times when a fair was held in the neighbourhood in the month of May, before the locality became closely covered with houses. The entrance to the stables is in Brick-street, through an arched gateway, which gives access to an irregularly-shaped quadrangle, round which the buildings are arranged. The pre-existence of the duck-pond gave some considerable trouble with regard to the foundations, and as there was a restriction against buildings being erected more than 12 ft. high, the whole area of the ground had to be excavated 2 ft. or 3 ft. On the right hand, after entering the gateway, is a block containing, on the ground-floor, four loose boxes, quite distinct from the rest of the buildings. The first floor of this block contains a spacious and pleasant mess-room for the use of the grooms and under-coachmen. The floor, like all the other over-head floors, is constructed on Dawnay's fireproof system. The coachman's suite of rooms occupies a portion of the first floor of that part of the buildings which faces Brick-street, and consists of a sitting-room (over the archway, and so planned as to enable the coachman, as the responsible man in charge, to have command over the entrance, and to have oversight of all that is going on in the yard), kitchen, and three bedrooms. These apartments are reached by an open stone staircase from the yard, and a balcony passing in front of them gives access to the men's mess-rooms. In a recess beyond the block containing the four loose-boxes, is the coach-cleaning shed, very commodious, and well lighted by a skylight. In this shed, which is enclosed by glazed gates of an ornamental character, the washing of the carriages will be done, irrespective of the weather. On one side of the shed are four bays, in which carriages, when cleaned, will stand. Adjoining the carriage-shed are the harness-rooms, and then come two more loose boxes. The western side of the quadrangle is divided into two ranges of stall stables, each range consisting of six stalls, with a horse-cleaning compartment between each range, so that a horse can be cleaned under cover and taken to its stall without passing out of doors,—a point to which considerable importance is attached. (The outer end of this compartment is formed by the archway shown in the view.) The stable fittings have been made to the architect's designs by Messrs. Musgrave & Co., of Belfast, and in them one or two specialities have been introduced, one of which is that water being laid on to each stall, each horse is provided with a tip-up receptacle for its drinking-water, and these receptacles are so arranged as to be made available for the flushing of the gutter in the floor of the stall. Special attention has been paid to ventilation and drainage. The remaining apartments on the upper floor consist of a dormitory for the men (each man having his own cubicle or compartment and a separate wash-basin, with hot and cold water), saddle-room, and hay, straw, and corn stores. The principal materials used externally are red bricks, supplied by the Brasknell Brick and Tile Company, and Corsehill stone. All the woodwork, including doors, is teak, and all the steps and landings are of Scotgate Ash stone. A portion of the flooring on the upper story is of Brunswick Rock asphalte paving. The yard is paved with Walker's granititic paving, and the floors of stalls and coach-house with Dutch clinkers. Mr. Parrott was the clerk of works, and the builders were Messrs. Patman & Fotheringham, their foreman being Mr. Fairweather.

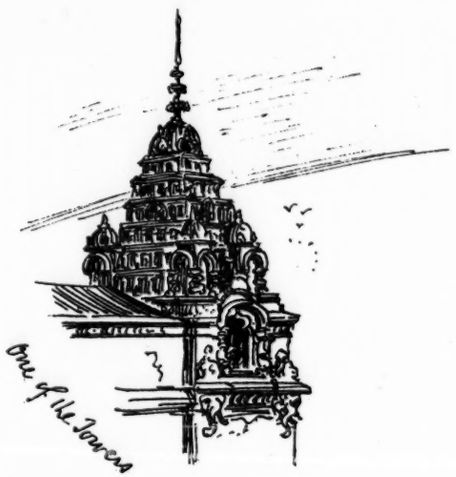
Mr. W. C. Fenton has been appointed Building Inspector of the Sheffield Corporation. The salary is 130*l*., with an increase of 10*l*. per year to 160*l*.

* See pp. 173, 181, *ante*.

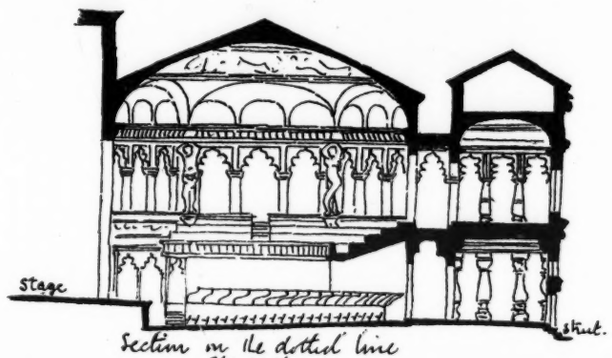

The Stage
The Auditorium (lighted by Gas)
Foyer
Fitted up with Refreshment Bars with attendants in Costume.
Street Front
A
Corridor
Fourteen feet wide and lighted by Gas.
Bar.
Staircase
A Mem: The side A is not equal to the opposite sides but is reduced to allow of the opening to the Proscenium being wider
The Garden (Eden)
covered with a glass & iron roof & furnished with fountains rockery palm trees &c. & lighted by arc lights

Plan at the first tier level (Fauteuils de Balcon) No scale.

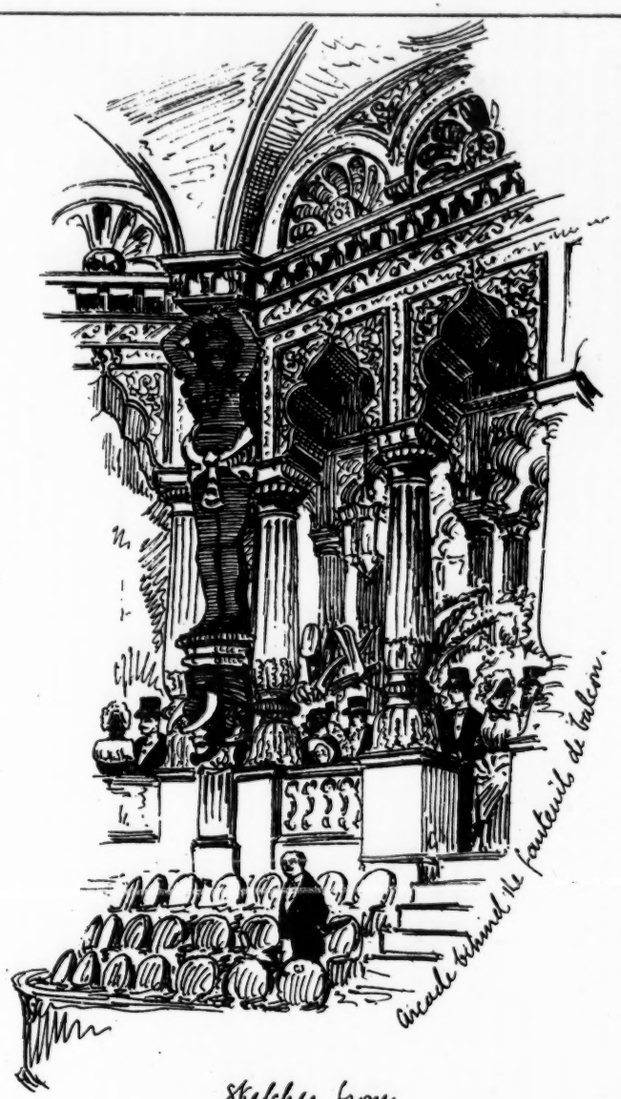
In the Garden (Eden)



One of the Towers



Section on the dotted line No scale.



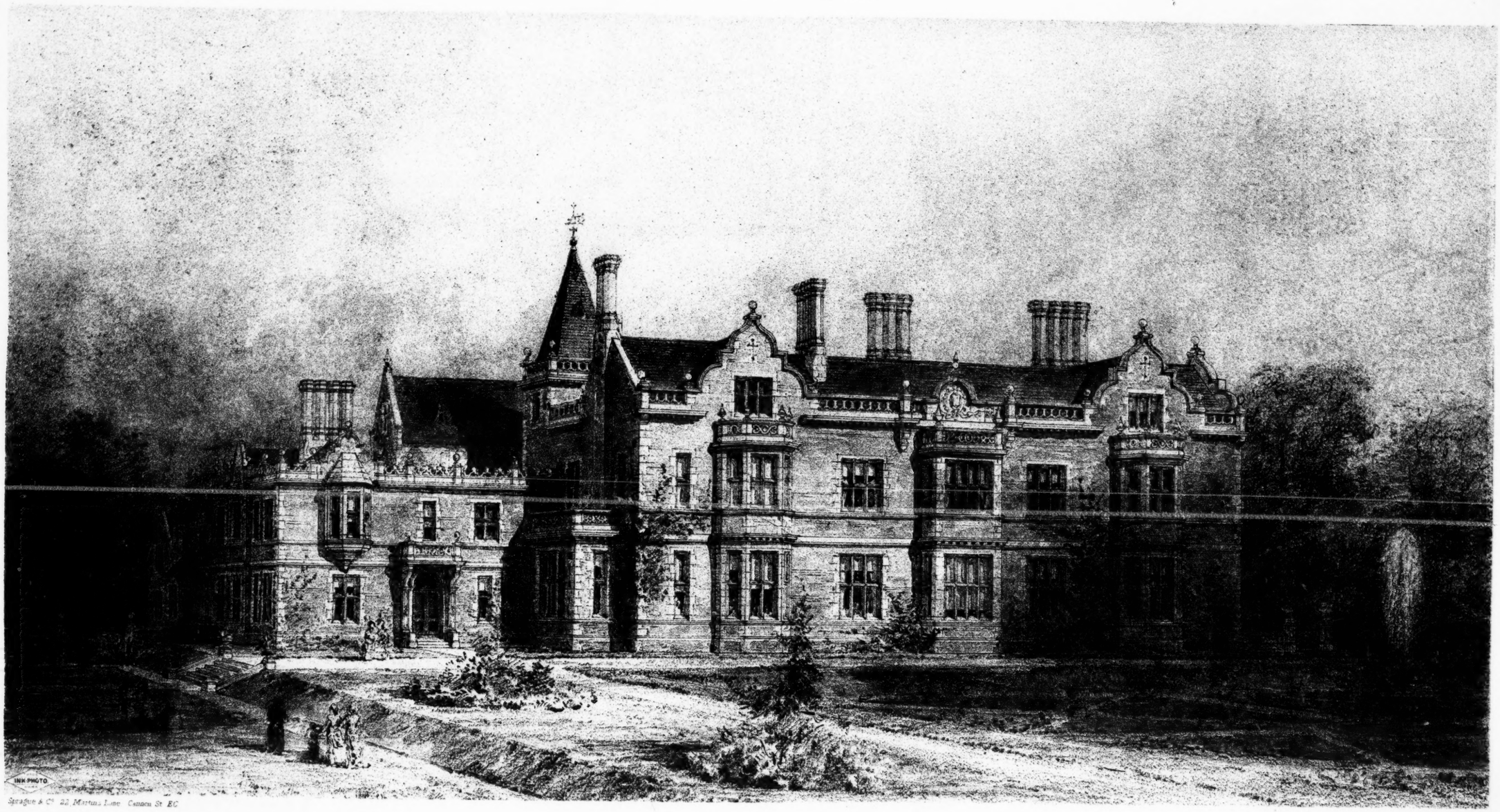
Arcade behind the fauteuils de balcon.

Sketches from "Eden" the new theatre recently opened in Paris near the Opera House.

J. Jarvis Perry January 1883

Whiteman & Bass, Photo-Litho 236 High Holborn.

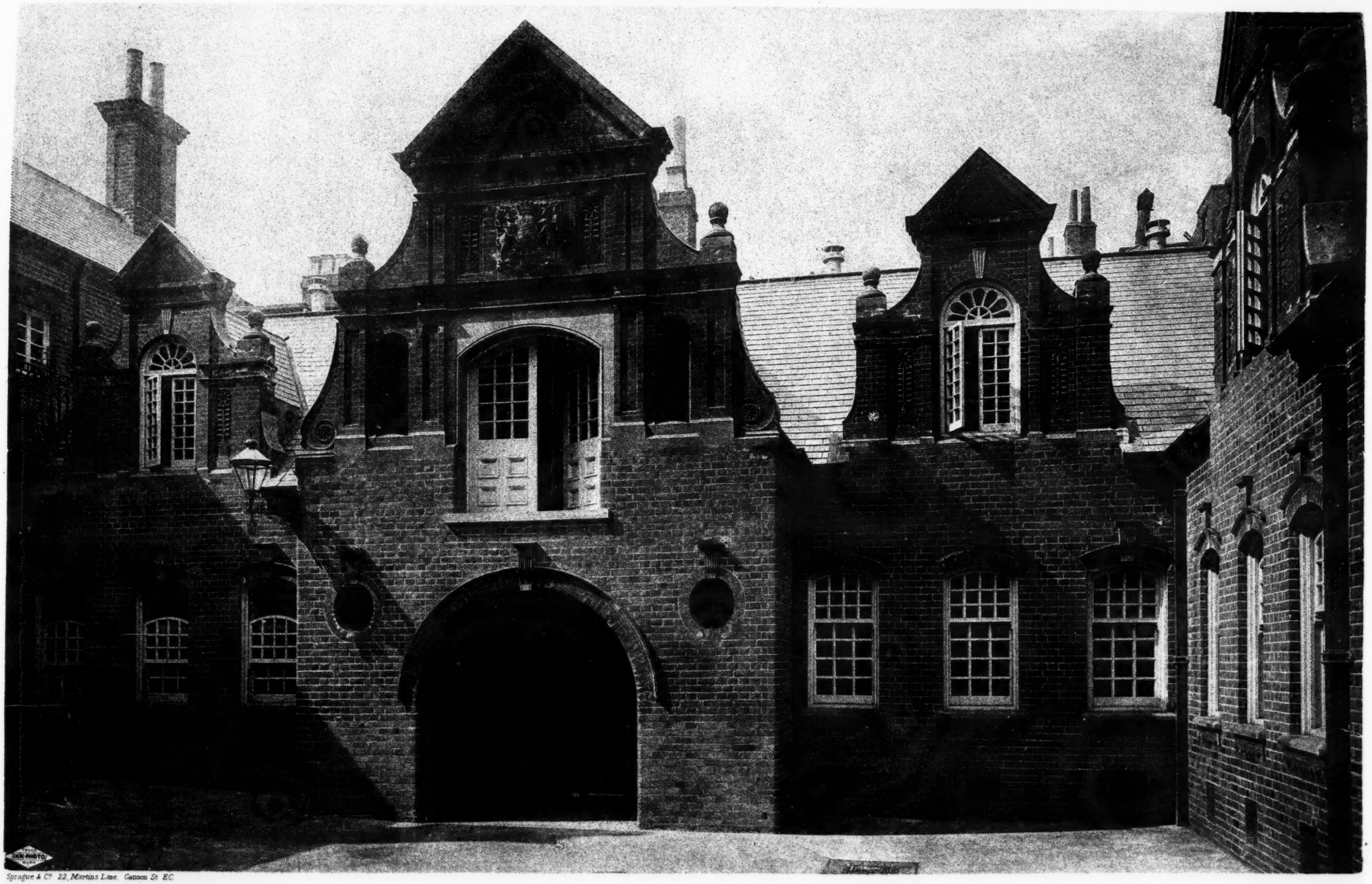
Wyman & Sons, Printers, Cr Queen St.



BLACKMORE PARK, NEAR GREAT MALVERN.

Mr. David Brandon, F.S.A., Architect.

ULM CATHEDRAL, IN COURSE OF RESTORATION.——Exterior of the Choir.



Sprague & Co. 22, Martins Lane, Cannon St. EC.

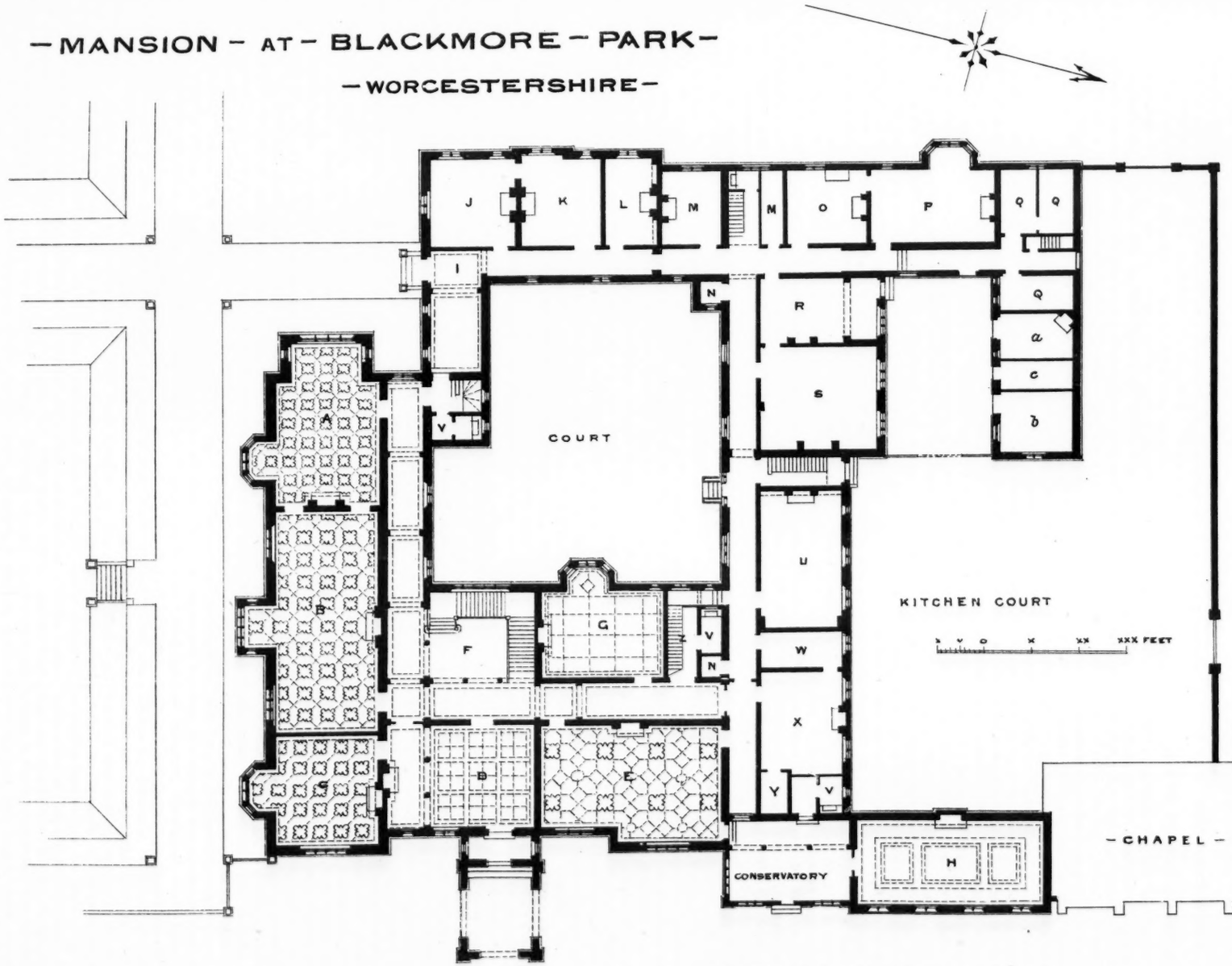
VIEW IN COURT-YARD OF STABLES, BRICK STREET, MAYFAIR,

(Recently built for the Marquis of Londonderry.)

MR. JAMES BROOKS, ARCHITECT.

—MANSION— AT — BLACKMORE — PARK—

—WORCESTERSHIRE—



A LIBRARY
B SALOON
C MORNING ROOM
D ENTRANCE HALL
E DINING ROOM
F BUSINESS ROOM
G PRINCIPAL STAIRCASE
H BILLIARD ROOM
I GARDEN ENTRANCE
J SITTING ROOM
K BED ROOM
L DRESSING ROOM
M STORE
N LIFT
O STILL ROOM
P HOUSEKEEPERS ROOM
Q LARDERS
R SCULLERY
S KITCHEN
T LUGGAGE ENTRANCE
U SERVANTS HALL
V LAVATORY
W BUTLERS BEDROOM
X BUTLERS PANTRY
Y STRONG ROOM
Z SERVANTS STAIRS
a GUN ROOM
b UNCOOKED MEAT
c & GAME LARDERS

— GROUND — FLOOR — PLAN —

— DAVID — BRANDON — ARCHITECT —

Whiteman & Bass. *Photo-Litho* 236, High Holborn.

Wyman & Sons, Printers, G^t Queen S^t.

THE PROPER USE OF MODERN CLASSICAL ARCHITECTURE.

THIS was the title of a lecture delivered in the theatre of the London Institution, Finsbury-circus, on the 8th inst., by Professor Kerr. At the outset the lecturer observed that the popular appreciation of that most dignified and pleasant art which we called architecture was a test of national culture, and it was therefore highly gratifying to observe at the present time an increased disposition on the part of the public to acquire some sort of architectural knowledge. The possession of architectural knowledge in its fullest sense implied the combination of two qualifications, viz., the power of designing and the power of understanding and criticising. Now the power of designing a work of architecture could only be obtained by the few, after a long course of professional education, but the power of understanding and criticising a work of architecture might be enjoyed by everybody who would take a little trouble. Primarily, the fine art of architecture was concerned with producing graceful effects in the form of buildings, and the architect would therefore be the artistic director of the builder. In practice, however, as he need scarcely say, the architect directed the builder not only in matters connected with the graceful appearance of a building, but with equal regard to its scientific construction and the arrangement of its plan. But the construction and the plan were only to be regarded as the groundwork on which the surface of a beautiful building was to be properly worked out. If the surface was out of accord with the construction actually used, it was sham architecture. It must not be supposed, however, that the work of the architect ceased when the work of the builder (so-called) ceased, for although there were decorative artists of all kinds in abundance, architectural principles should control their work in most cases, if the result of the building as a whole was to be successful. One of the most acceptable signs in artistic practice at the present day was that we saw various subsidiary arts concerned in the furnishing and decoration of buildings engaging the attention of trained architectural minds, and with, in the main, very successful results, for it was very often the case that when people took an intelligent interest in these subsidiary arts they were led on to take an interest in architecture and the other fine arts. To take an instance, it could not be doubted that the increased attention which had been paid of late years to matters of church decorat on and architecture had done much to produce that strong feeling in favour of Gothic architecture which, though now gradually subsiding, had produced throughout England one of the most highly-creditable periods of artistic building that the world had witnessed. The peculiar fashion known as "Queen Anne" architecture, now so commonly prevalent, might be frankly said to have little merit of its own, but it served the useful purpose of a stepping-stone between the Gothic revival,—now fast fading away,—and the Classic revival, which was coming forward. But it might be asked how it was that we in the present age were confined to working in either Classic or Gothic. The common answer, that they were merely old styles which were copied by architects because they could not create a fashion for their own time, was a frivolous one. It would not be far from the truth to say that the progress of artistic design in building had produced only two great artistic styles of design, viz., that which appertained to the Empire of Rome, and that which appertained to the Church of Rome, or, in other words, Classic and Gothic. As Greece led the way for Rome, so Italy followed Rome in the modern Renaissance, so called. Classic architecture had pursued its course from the Ephesus and Athens of the ancients to the Paris, London, Berlin, Munich, and Vienna of the present day. Just as Classic architecture was for a time cast aside by the fall of the Roman empire, so Gothic architecture, which was gradually evolved from the ruins of Classic architecture, lasted as long as the great system of Roman ecclesiasticism existed in full force. The general revival of Gothic architecture which had been witnessed in this country was, too, only part of an ecclesiastical revival which had taken place. It was, indeed, a maxim in architectural history that the fashion of building always followed closely and characteristically the social movements of the age, and hence architecture had been well called "history in stone." After comparing various features common alike to Classic and Gothic architecture, for the purpose of showing how the self-same problems in construction had been met, though in different ways, the lecturer proceeded briefly to trace the history of both styles, pointing out that the Gothic style never flourished freely on Italian soil, for, although the Goths took possession of the country, the Roman feeling still lingered on, and made the Renaissance possible. The period of the Reformation witnessed changes in the political system of Europe which would have rendered the perpetuation of the Mediæval or ecclesiastical type of architecture an anachronism. In point of fact, the Renaissance was coeval with the commencement of the modern period of the history of Europe, and experience had shown that Classic architecture was more compatible with the spirit of modern progress than Gothic architecture. It was not, however, until the time of Sir Christopher Wren that the effects of the Renaissance could be recognised in England. Wren's greatest work, St. Paul's Cathedral, in spite of its all-pervading grace, and beauty of superficial form and proportion,—qualities which could scarcely be too much admired,—was, as architects knew, characterised by grave and vital departures from the true principles of architecture. It was the first principle in architectural design that the surface and the substance shall run together,—that the superficial design shall correspond with the facts of construction. Unfortunately that great rule was not recognised by Wren, whose idea evidently was that the outside and the inside of his building had nothing whatever to do with one another. The lecturer was sorry to have to confess that that doctrine had been accepted in England ever since,—so much so that it was only within the last thirty years that its fallacy had been exposed and the true philosophical character of artistic architecture insisted upon and recognised, though, too often, in theory rather than in practice. Wren's example had led to shams of the grossest kind in modern specimens of Classic architecture,—and, in spite of the corrective influence of the Gothic revival, such specimens were by no means few or far between, for, with few exceptions, all important public or semi-public buildings which had been erected in this country since his time were in the Classic style. It was true that in a few instances town-halls and similar buildings had been erected in the Gothic style under the idea that the Gothic style was indigenous to the country, while Classic was thought to be an exotic; but such notions were now tolerably well exploded. Of course Houses of Parliament and Courts of Law might be erected in as Gothic a manner as might be desired by the intending occupants, who were not, perhaps, very much to be pitied when they complained of the after-consequences to themselves. In the coming return to Classic architecture in England, those who sought to adapt it to modern requirements must seek to impart to it an individuality which should be peculiarly its own. The English people were fond of a certain degree of picturesqueness, and it was this circumstance which gave to our architectural position at the present moment a peculiar interest. Fashion had become tired of Gothic architecture, but the English mind could not all at once dispense with the picturesque element which it had been accustomed to enjoy. Hence the uprising of the so-called "Queen Anne" style,—which was more Dutch than anything else,—as a sort of picturesque Classic. The French had ever been true to the Renaissance; but, nevertheless, there were modern buildings in the Classic mode in France that possessed a picturesqueness of their own. It remained to be seen whether English architects would not abandon the fashion of the clumsy Hollander for the gracefulness which characterised the French Renaissance. Among the lessons which we had been taught by the great Mediæval revival, that of truthfulness in construction was conspicuous, and it might fairly be hoped, therefore, that the result of the artistic training of the last fifty years would not be lost, even though Classic forms might prevail. Some people were of opinion that a style of English Classic which should be picturesque might be produced by an infusion of Gothic details; but whatever was to be done in that direction must begin with first principles. Let it be fairly recognised that the weak point of modern Classic design had always been its want of structural truth. The articulation and the surface appearance of a building ought always to represent the facts of its construction. Of course, it was sometimes very difficult to do this, and it was likely to become more and more difficult with the increasing intricacy of modern requirements in building. Moreover, the future of the principle of the arch seemed to be involved in mystery, but very much depended upon it. As to the English style of the twentieth century, he ventured to predict that it would be a free rendering of the so-called Renaissance. The leaders of modern European taste were France and Germany: they had never swerved from allegiance to the Renaissance. The Gothic style, so far as secular work was concerned, had now run its course; how long it would last for church work it was difficult to say. The effect of the Gothic revival upon the architectural work of the future could not, he thought, be other than beneficial.

HINTS TO GAS CONSUMERS.

IN the course of his inaugural address as President of the Society of Engineers, on the 5th inst., Mr. Jabez Church, in expounding a few of the leading principles which underlie economic and effective gas illumination, said:—I would observe, in the first place, that the advent of electric lighting undoubtedly gave an impulse to the demand for improved gas-lighting, as well as to invention in that direction. Means were at hand to meet the demand much more readily than it was generally supposed it could be met, and inventors were stimulated to still further improve those means. The general public had grown into the conviction that any improvement in lighting thoroughfares by gas would be attended by enormous expense, and so undoubtedly it would be if the gas were burned in the same wasteful and unscientific manner as for the most part was, and unfortunately still is, the case in many places, both for indoor and outdoor illumination. It was, however, shown during 1879, by three notable examples of experimental street-lighting in the Waterloo Bridge-road, Waterloo-place, and Victoria-street, that the deficiencies of our street illumination are not due to the impossibility of obtaining a better light by the aid of gas except at a prohibitory cost. Parliament-street and Charing-cross are present examples of a generous but not extravagant supply of gas at by no means a prohibitory increase in expense. And in other parts of London, in the suburbs, and in most of our provincial towns, as well as in many Continental cities, similar examples of vastly improved gas-lighting are to be met with on all hands. One reason of the inferiority of gas-lighting in general is largely due to a false economy consequent upon a lack of knowledge respecting the true principles upon which gas should be consumed. The general impression is that gas is not being wasted if it be turned down so as to give a reasonable light without rushing noisily from the burner. This is a great fundamental error, inasmuch as if there be no governing medium interposed between the meter and the point of ignition of the burner, great waste of gas is going on. A control over the pressure of the gas is one of the first essentials of economical gas-burning, as has long been scientifically demonstrated. This lesson should be taught by those who have the supply of our gasfittings, but unfortunately, as is very generally the case, they are as ignorant and as prejudiced as the generality of the public themselves. Who, with any knowledge of the subject, has not noticed that many respectable gas-fitters' shops are simply stores of the merest rubbish in the shape of burners, ill-shaped and light-obstructing globes, regulators, economisers, and the like? There is, however, a growing improvement, thanks to the electric light, in this direction; some of our leading manufacturers having discarded mere rule of thumb, have brought scientific knowledge to bear very practically upon these all-important matters. I have said that the chief factor in the economical burning of gas is the due exercise of a controlling power over it; and this began to be one of the chief studies of gas engineers soon after the practical introduction of gas-lighting. We may place that date about three-quarters of a century since, but it is only within comparatively recent times that the subject has been fully grasped

and worked out to a fairly successful end. This power of control is the key to the efficient and economical use of gas, or, in other words, the production of a good light at a low cost; to it is due the bold front which gas companies and others have been able to show to their more dazzling rival, the electric light. I would remind you that at the time of the practical introduction of gas-lighting the chief, if not the only, illuminants were the oil-lamp and the candle. The lamp was the larger and more costly, the candle the smaller and less expensive, and the first idea was to imitate these lights as far as was possible. These being the only examples present to the minds of those who introduced gas-lighting, they naturally followed them in designing their burners; they, therefore, bored a little hole in the stopped end of a small cylinder, thus producing a flame resembling that of a candle. Proceeding to deal with the higher kind of illumination, they took the Argand burner itself, stopping the annular wick space with a perforated ring. They thus produced an excellent light, and a burner which is in extensive use at the present day under, of course, modified conditions.

It does not appear to have occurred to any of our early gas engineers that the loss of illuminating power in these burners was very great, in consequence of the over-oxidation of the flame, owing to the velocity with which the gas issued from the orifices, for there is no record of any attempt at first to govern the pressure, or at least of any success in so doing. The velocity was very great, as at first there was nothing, not even a meter, interposed between the company's gas-holder and the consumer's burner. In those days gas was supplied by contract, and in order that the company might be on the right side, and that consumers should not burn more gas than they paid for, burners having very small holes,—about the 100th part of an inch in diameter,—were used; the consequence was that the gas was propelled from the burner with extreme velocity, and could not remain a sufficient length of time in contact with the oxygen of the atmosphere to become thoroughly incandescent, thus developing more heat than light for the quantity consumed. In this way with the old Argand and fish-tail burners the gas rushed into the air through the small holes at a velocity of from sixty to ninety miles an hour. Under modern conditions the case is materially altered, for with one of the best burners of the present day, Sugg's London Argand, the gas issues from the holes with a velocity of only a little more than one mile per hour. But then the gas is properly governed before it reaches the point of ignition at which it is consumed, and hence the economy.

It is now a well-known fact that the lower the velocity with which the gas issues from the burner, the better are the results as regards illuminating power, simply because the whole of the illuminating properties of the gas are utilised instead of being sent into the air to waste themselves and vitiate the atmosphere of the room. Notwithstanding all the improvements that have been made in gas-burners, the fact remains that a very large proportion of those in use at the present day destroy the latent power of the gas consumed to the extent of from 20 to 50 per cent. Some of these burners should give sixteen candles illuminating power for a consumption of 5 cubic feet per hour, but careful experiment has shown that they only give six candles for that quantity. A very critical examination was made some years since by the Gas Referees into the burners in general use. In the result they reported to the Board of Trade in January, 1870, that in London alone an annual saving of 250,000*l.* might be effected by the use of good burners. As mentioned in my last address, I now repeat that if Parliament would grant powers to gas companies to allow them to prescribe and regulate internal fittings in a similar way as water companies are allowed to do, great benefit would accrue to the public. It is not my province to advocate any special invention, but I would advise that those who are using the old-fashioned and wasteful fittings, should have the defects remedied by some well-known firm, not only for the sake of a better and more economical gas-light, but for the purpose of preventing the unconsumed gas passing into the house, which is highly injurious both to furniture and to health.

This brings me to the question of ventilation in connexion with gas-lighting. Now there can be no doubt that the great superiority over the present method of internal illumination by gas which the incandescent electric light possesses, is that with these lamps no products of combustion are discharged into the room. If with gas this defect can be overcome in ordinary gas-fittings,—and mark me, sooner or later, it will be overcome,—then I firmly believe that ninety out of every hundred people, after having had experience of the two lights in all their bearings, would elect to adopt the gas-light. It appears to me that in this particular, and this alone, has the electric light for internal illumination any superiority, while there are many particulars, such as certainty, convenience, and last, though not least, cost, in which gas must take the lead. If this be correct, it behoves scientists interested in this matter to go thoroughly into the question, for a vast future awaits any one who can successfully accomplish this. If gas is properly used it should be an aid to ventilation instead of making the apartment hot and unhealthy.

NEW BUILDINGS IN FLEET-STREET.

Architectural improvements in Fleet-street have for some time past been proceeding at a rapid rate, more especially as regards the newspaper offices, of which this historical thoroughfare and the locality immediately surrounding is largely the home. Only a few months ago, an extensive and palatial block of buildings, which had been erected as the *Daily Telegraph* offices, was opened for business, and within the last few days a somewhat similar block, which has been in course of erection for the daily organ known as the *Sportsman*, has been completed and occupied for the purposes of that journal. The building has displaced some of the ancient houses previously occupying the site, one of them having been for many years the offices of the *Weekly Dispatch*. The building, which contains four lofty floors and dormer story, in addition to a deep basement constructed for machinery, is faced with red stone from the Corsehill quarries, on a granite basement. The elevation has a frontage to Fleet-street of 40 ft. in length, and is carried to a height of 60 ft. The ground-floor portion of the frontage, which contains the general business offices, has a prominent entrance, surmounted by a pediment enclosing a carved figure of a racehorse, typical of the business of the establishment. The entire elevation, from the ground floor to the upper portions of the building, contains a profusion of carving and ornamentation. The first, second, and third floors contain each a range of five-light windows, between which are carved pilasters, surmounted by capitals. Between each floor there is a frieze and cornice, as also at the top of the elevation, immediately under the surmounting dormers. The windows of the several floors are ornamented with stained glass.

Internally, the building, which is 120 ft. in depth from Fleet-street, contains, in the basement, the machine-room, which occupies the entire area of the apartment. The composing-room, which connects the front with the rear of the premises, where is situated the foundry or stereotyping department, has a length of 75 ft., and beneath is a large space devoted to the publishing department. A lift places the foundry in communication with the basement, and carries the stereo direct to the printer. A second lift connects the ground floor with the basement, and the latter is provided with a platform lift for conveying the paper from the street, a system of overhead travellers delivering it to the machines. The basement floor has a depth of 16 ft. from the pavement, and beneath it a tunnel has been constructed, which contains the requisite shafting. The whole of the drainage is carried through this apartment in cast-iron piping. A portion of the upper floors will be let as offices.

Mr. W. B. Brown is the architect, and Messrs. Colls & Sons are the contractors.

A New Cemetery at Hasland, near Chesterfield, has been consecrated. The land, about two acres in extent, cost 277*l.*, and it is estimated that the cost of fitting it for the purposes of burial will amount to about 1,000*l.* The preparation of the ground has been carried out by Mr. Butterworth, surveyor to the Rural Sanitary Authority, the contract for the buildings and for the laying out and drainage being let to Mr. James Hoole, of Hasland.

NEW THEATRE AT VALPARAISO.

A competition is invited for a new theatre at Valparaiso. The auditorium is to seat 2,000 persons, and the building is to contain, besides the usual spaces and rooms for a theatre, a large ball-room with dining and retiring rooms, a restaurant, &c., attached. The cost is not to exceed 40,000*l.* Designs must be sent in, accompanied by an explanatory report and estimate, before May 9 next, through the Chilian representative, to the administration of the Valparaiso theatre. Two premiums will be awarded, one of 600*l.* and another of 200*l.* Architects intending to compete may obtain further particulars at the Chilian Embassy, Berlin, Stühlerstrasse 7, and, we suppose, also at the Chilian Legation in London.

IRON CEMENT.

One of the leading organs of the metal industry in Germany recently published a description of the various cements by which the fastening of iron to iron or stone may be effected. The subject is divided into various heads, corresponding with the different forms of employment, and consequent divergence in the properties of the cement used.

1. *Iron Cement, or Iron Rust Cement.* (This cement is intended for the joining of cast and wrought iron: as, for instance, in water-communication pipes, cast-iron vessels for cooking and washing purposes, &c.)

a. Two parts of powdered sal ammoniac and one part of flowers of sulphur are mixed, and kept carefully closed up. When required for use, one part of the compound is mixed with 20 parts of fine iron filings, and the whole is stirred with water into a stiff paste; there having previously been added to the water a sixth part of vinegar, or some drops of sulphuric acid. This cement requires to be applied to or pressed into the filed-off points of junction.

b. One part of sulphur, two parts of sal-ammoniac, and 16 parts of very fine iron filings, are mixed together. When required for use, a similar quantity of iron filings is again added, and the whole is worked up into a thick paste with water, to which a few drops of sulphuric acid have been added.

c. 100 parts of iron filings, free from rust (fine dust from turning or boring cast iron) and one part of sal ammoniac moistened with urine.

(*d.*) For the cementing of fine castings (such as ornaments to iron stoves and chimney-pieces, &c.) there is used in the cement described under division *c*, instead of the iron filings, finely powdered iron, which is known to and sold by druggists as *Ferrum pulverisatum*.

[These iron cements harden completely after several days, until which time it is advisable not to subject them to the action of heat.]

2. *Waterproof Cements for Gas and Water Pipes* (*particularly adapted for use on a small scale.*)

(*a.*) Ground white lead or red lead is rubbed into a stiff paste with thick linseed-oil varnish. This cement is extensively used in connexion with wrought-iron gas-pipes, for the protection of the riveted seams in gasometers, hot-water ovens, and cast-iron flange-pipes for hot-water heating appliances. The cement made from red lead is also known under the name of red-lead cement. In some cases ground gypsum is added to it. Red lead cement dries slowly, but resists water even before it has quite hardened. When quite hard it holds very fast.

(*b.*) The following cement is less expensive than that made with red lead as described: 1 part of white lead, 1 part of manganese ore, 1 part of white pipe-clay mixed with linseed-oil varnish; or 2 parts of red lead, 5 parts of white lead, and 4 parts of pipe-clay, mixed with linseed-oil varnish.

(*c.*) For use with water-pipes on a large scale,—twenty-four parts of Roman cement, eight parts of white lead, two parts of silver-litharge, and one part of resin are mixed together in a fine powder, with the addition of eight to ten parts of boiled linseed oil (old), in which one part of resin is dissolved.

3. *Methods for Fastening Iron in Stone.*

(*a.*) By the use of gypsum. A hole is made in the stone for the iron which has to be inserted, and it is suggested for this opening to be somewhat widened towards the interior. To facilitate the adhesion of the gypsum to the

stone the walls of the opening should be damped before the gypsum is poured in.

(*b.*) By the use of sulphur. Sulphur is used in the fastening of portions of railings in stone, &c., but it has been found by experience that atmospheric influences quickly destroy the sulphur. The expansion of the sulphur when the cement hardens causes thin pieces of the stone to become detached. The addition of colcothar is said, however, to obviate this inconvenience.

(*c.*) By the use of lead. This is considered the most durable, but it is at the same time the most expensive method of fastening iron into stone. Sometimes, however, the contact between lead and iron causes the latter to be eaten away by rust, as may be occasionally seen in the case of railings.

MECHANICAL INDUSTRY IN RUSSIA.

FROM an official report recently published on Russian mechanical industries, we notice that, incidentally, reference is made to the means taken by the Government for developing these industries throughout Russia. The special methods adopted by the Government for this purpose are thus summarised: — 1. Lending money on mortgage to works, to be repaid by easy instalments. This is said to have proved unsuccessful, for the greater number of the works being unable to repay their loans, became in consequence the property of the Government. 2. Lending money by the State Bank on work taken in hand and finished when orders were few; these goods were laid by in reserve by the Government in anticipation of future demands. This measure was of assistance to some works, especially to those occupied with some particular branch of mechanical industry. 3. Giving Government orders to works, and paying as the work progressed. This system has been the making of the great St. Petersburg factories, but the absence of private orders leaves them sometimes unemployed. 4. Giving bounties on certain articles, such as locomotives, rails, &c., made of Russian materials. This, the Government Report says, produced a favourable effect. The bounty on steel rails is 30 copecks a pood, and that on locomotives 3,000 roubles (300*l.*). 5. Granting permission to factories to import, duty free, everything necessary for building their works. This is considered to have been very slightly beneficial to the works, and highly prejudicial to native industry, as it prevented the orders being given at home. 6. Permission to import steel at a low tariff. This privilege will probably be abolished, owing to the increasing production of steel in Russia. The 1880 tariff charges it at the same rate as iron.

THE GAS LIGHT AND COKE COMPANY AND THE ELECTRIC LIGHT.

THE half-yearly meetings of the gas companies which are now being held indicate that their receipts are so far in no way prejudicially affected by the electric light movement. At the meeting of the Gas Light and Coke Company, which was held on Friday, the 9th inst., the chairman observed that almost every item showed an improvement in the receipts, except for coke, and with respect to that, he believed that the falling off in the sales was only of a temporary character, and due to the extraordinary mildness of the weather. He added that the company did not altogether depend on the medium of lighting for a revenue. Great progress had been made in the consumption of gas for cooking, and for domestic stoves; and last year 23,500,000 ft. of gas had been consumed in this way. Adverting to the question of electric lighting, he observed that he would only say it had done them no harm. He was no prophet, and would, therefore, abstain from saying anything with regard to the nature of that light. In some cases, companies had been formed whose efforts had been attended with partial success, but he could not help remarking that several others had been established otherwise than on a sound basis. A dividend at the rate of 11 per cent. per annum was declared, 40,399*l.* being carried to the reserve fund. A special feature in the meeting was the rejection, by 84 to 79, of Sir Thomas Paine as a director, on a motion to the effect that no person, either directly or indirectly interested in the question of electric lighting, should be allowed to sit as a director. It was explained that although not personally interested in any electric lighting company, he was at the head of a firm of solicitors who were promoting one, but that he had nothing to do with the Bill.

DUBLIN SANITARY ASSOCIATION.

THE annual meeting of this association was held on the 8th inst., in the Molesworth Hall, Molesworth-street, Mr. Jonathan Pim in the chair. The report contained many useful propositions.

Dr. Moore, in moving the adoption of the report, referred to the loss which the Association had sustained by the death of Mr. G. C. Henderson, C.E., one of the members of the executive committee, whose special knowledge and active labours had greatly advanced the work of the Association.

Mr. La Touche, in seconding the motion, referred to the influence which the Association had had in the education of public opinion on health questions. When the association was originated, ten years ago, the attitude of the corporation towards measures of sanitary reform, if not actually hostile, was, at all events, merely passive. At the present day it was not too much to say the Corporation of Dublin were eager and anxious for the promotion of sanitary reform. Of course, the corporation, in carrying out many of these measures had difficulties to contend against which had not been anticipated. In one matter, that of the slaughterhouses, they had been compelled to take a retrograde step, having adopted measures in 1871, part of which they had to let drop in their by-laws of 1882. They had built public abattoirs of a most complete and perfect construction, and it should be the work of the association to press upon the public opinion of the city the duty of insisting that the abattoirs were used by the butchers, and that all slaughterhouses which had not vested rights prior to 1849 should be compulsorily disused.

The report was adopted.

Mr. Robert Sexton, T.C., in seconding a subsequent motion, said that as a member of the Cleansing Committee of the Corporation, he was glad to be able to inform the association that one of the matters referred to,—namely, the gratuitous cleansing and removal of house ash-pits,—was already an accomplished fact, and any one could, by sending notice to the proper office, have his ash-pit cleansed free of charge. He had procured from Mr. Young, the superintendent of the Scavenging Department of the Corporation, an abstract of the work done in the past year, the result of which was that during 1882 there had been removed no fewer than 130,354 loads from the streets of Dublin, and the average quantity of house refuse removed and carted away was over 1,000 loads per week.

WORKS AT SHEFFIELD PARK.

THE noble owner of Sheffield Park, near Brighton, the Earl of Sheffield, has, during the last two years and a half, directed works to be carried out on his beautiful domain. Those already completed include considerable improvements to the whole of the exterior of the mansion, the western part of which has been beautified with new windows in the upper story, while on the north side a handsome new entrance porch has been added. The whole of the roofs have been stripped and re-slated, and a new English oak bell-turret fixed on the centre, which now makes the mansion present a very ornate appearance from many parts of the park. The old stables have been pulled down and new ones built, giving accommodation for eighteen horses, with loose boxes, riding-school, and four double coach-houses. There are also apartments for coachmen and grooms, including no fewer than eight large rooms, also large lofts and forage-rooms.

The ground-plan is a square of over 10,000 ft. area, with quadrangle in the centre. The principal entrance is through a Tudor archway of good proportions. The south and east fronts are of two stories, the centre of the east front being surmounted by a mansard roof. The interior of the stables has been fitted in the most complete manner, Musgrave & Co.'s fittings being used. The stall divisions are of 2-in. pitch-pine varnished; the walls are party-coloured Portland cement and pale green hexagon tiles. The ornamental iron posts are furnished with heavy brass polished rings and chains. The stables and quadrangle are paved with yellow Dutch clinkers and blue Staffordshire grooved bricks. The harness-room and cleaning-room walls are covered entirely with 6-in. by 1-in. pitch-pine and varnished, and fitted up in the most complete manner with Musgrave & Co.'s fittings. The stables are built of red kiln bricks and local stone dressing, his lordship supplying all bricks and tiles. A new laundry and wash-house, with coal and wood houses, have also been built, with flat roofs covered with 7-lb. lead, and battlemented parapet all round, the fittings for drying-closet, wash-house, &c., being supplied by Messrs. Packham, of Brighton. A new clock-tower has been built near the mansion, which forms a very pretty feature, with four faces, the clock being supplied by Messrs. Tanner, of Lewes.

A new garden has been formed, at a great expense, comprising about 3 acres, surrounded with a high brick wall, with new greenhouses, vineries, &c., and a very complete range of offices, fitted with every convenience, Messrs. Packham, of Brighton, supplying the heating-apparatus, and Mr. Baker, of North-road, Brighton, the ventilating apparatus and other ironwork. The locks, which are all of solid brass, were supplied by that well-known maker, Mr. S. Thomas, of Birmingham, the whole of the fittings, &c., being of the best description.

A new pavilion has also been built at the cricket-ground, with flat roof surrounded with ornamental iron railing, supplied by Messrs. Every, of Lewes. The ground has also been enlarged, and is now one of the finest, if not the finest, in England. For some considerable time his lordship has had about 150 men employed in extending the lakes to their present size, and has had a large reservoir constructed, with hydraulic rams, for supplying water to the mansion in case of fire, also to the stables and gardens, as well as to the cricket-ground, for use in dry seasons.

Mr. H. Card, of Lewes, was the architect for the new buildings, and Messrs. G. Cheesman, of Uckfield and Brighton, were the contractors for the alterations to the mansion, and new stables, Mr. E. Baker being the foreman. The other works have been executed, day-work, by Mr. John Fuller, builder, Fletching, under the supervision of Mr. C. A. Rapson, clerk of the works.

THE BURDETT BUILDINGS IN WESTMINSTER BRIDGE ROAD.

ON a site in Westminster Bridge-road, immediately opposite the Rev. Newman Hall's church, an extensive pile of buildings in flats for the industrial classes has just been erected by Mr. Hobbs, who is also the builder and owner of Queen's-buildings, which now cover the site on which formerly stood the Queen's Bench prison. The buildings, which, when completed, will consist of six blocks, occupy an area of about 6,000 superficial feet. They have a frontage to Westminster Bridge-road, 54 ft. in length and 70 ft. in height, and contain six floors. The elevation is faced with white Suffolk brick and Portland stone windows and dressings, all the upper floors having ranges of arched windows. The return frontage in Burdett-road (from which the buildings take their name) is 88 ft. in length, and uniform with that in Westminster Bridge-road. The greater part of the ground-floor of the Westminster Bridge-road frontage is occupied as a coffee tavern, in connexion with a dining-room in the basement, the remaining part consisting of shops. The tenements are approached from the Burdett-road frontage by three flights of stone stairs. Three of the blocks have already been completed, and contain thirty-six tenements,—six on each floor. Some of the tenements contain three apartments each, and the remaining portion two apartments, namely, a living-room and bed-room. The living and bed rooms are fitted with dresser, cupboard, and copper in the living-room, and cupboards in the bed-room. Each tenement has its separate sink, water-closet, and dust-bin, the several tenants in this respect being thus independent of each other. Within the several blocks there is an open area 20 ft. in width and 72 ft. in length, with an approach-road at the rear 18 ft. wide. The buildings have a flat roof for drying purposes, and when completed will contain seventy-two tenements, with accommodation

for an estimated number of about 300 persons. The site upon which the buildings have been erected was until recently occupied by Messrs. Maudslay, Son, & Field, engineers, where they were in the habit of fitting up their boilers and engines. This portion of Messrs. Maudslay's works has now been transferred to new premises at Greenwich.

Mr. Sinclair is the architect of these new industrial dwellings; and Mr. T. Hodgkins is Mr. Hobbs's clerk of works.

WASHABLE LIME COLOUR.

A washable lime colour is still a desideratum; but a compound appears to have been invented, which is said to possess that property. It is stated by the *Polytechnische Notizblatt*, that if a powder consisting of three parts of flint, three parts of marble and sandstone, and two parts of burned china clay is mixed with two parts of freshly-slaked and still warm lime, a mass for coating walls is obtained which, by frequent watering, is changed into a silicate of a stone-like yet porous texture. The four ingredients well mixed together are said to supply a grounding which may be added to any colour usable with lime. The mass is thickly applied and then left to dry until the next day, when water is poured over it at frequent intervals, by which proceeding the coating becomes weatherproof. This coating may be washed without giving off any colour. In fact, the more water is used, the firmer the mass becomes, so that it may even be brushed; whilst in warm weather, owing to its porosity, it is quite soft. The mass may be used both for the most coarse and the finest painting. With it a so-called fresco layer may be produced in the dry way.

CONCRETE WATER-PIPES.

In a late number of the *Annales des Ponts et Chaussées*, a cheap method of making water-pipes of small diameter is described. The pipes were formed of concrete in the trench itself. The mould into which the concrete was stamped in was of sheet-iron, and had a length of about two yards. The several pipes were not specially joined to each other, the joints being simply set with mortar. The concrete consisted of three parts of slow-setting cement and three parts of river sand, mixed with five parts of limestone *débris*. The inner diameter of the pipes was 9 in.; their thickness, 3 in. The average fall is given at 1 : 500; the lowest speed of the current at 1 ft. 9 in. per second. To facilitate the cleaning of the pipes, manholes are constructed every 100 yards or so, the sides of which are also made of concrete. The trenches are about 5 ft. deep. The work was done by four men, who laid down nearly 200 ft. of pipes in a working day; the cost was about 3s. 9d. per yard run. It is claimed as an advantage for the new method that the pipes adhere closely to the inevitable inequalities of the trench, and thus lie firmly on the ground. The works were carried out by M. Thanneur for the water-mains of the town of Coulommiers. It may here also be mentioned that in the course of the Canal du Verdon, which supplies the town of Aix-en-Provence and the neighbourhood with water, several mains were carried in a similar manner. But the concrete pipes which are submitted to great pressure have not proved effective. The method, consequently, is only suitable for pipes in which there is no pressure, or only a very trifling one.

THE NEW YORK ELEVATED RAILWAY.

In the second volume of the great work of Messrs. Lavoinne & Partzen, entitled "Les Chemins de Fer en Amérique," much attention is devoted to the elevated railways of New York. There are altogether four lines of this description, having a total length of nearly thirty-two miles. The rolling stock consists of 203 locomotives and 612 carriages. The trains consist of from two to four carriages, and the average speed is from twelve and a half to fourteen miles. The intervals between the trains vary from one and a half to five minutes, according to the time of day. Between twelve o'clock midnight and half-past five in the morning, they only run at intervals of fifteen minutes. The average time of stoppage at each station is only from fifteen to thirty seconds. The carriages are all of one class, and the fare is the same for all distances. It is about 5d., except for the early trains from half-past five to half-past eight in the morning, and from half-past four to half-past seven in the evening, when the price is only half. The cost of these lines averaged about 200,000*l.* per mile, but in spite of this comparatively moderate outlay, and the enormous number of passengers carried, the financial results have not proved very satisfactory.

THE WEEHAWKEN TUNNEL.

The boring of the tunnel under the Hudson River at Weehawken, New Jersey, opposite New York, has now been completed, but it will probably be six months before the tunnel and its approaches will be ready for traffic. The eastern entrance has been cut through solid rock for 150 ft. The breadth is 56 ft., while the tunnel itself, which is 4,000 ft. long, is 27 ft. broad and 21 ft. high. Most of the boring has been done since January, 1882. The estimated cost of the tunnel was a million and a quarter dollars, but the actual cost will, it is expected, prove considerably higher. It was only possible to make such rapid progress by sinking shafts and working in both directions from each of these. The number of shafts was five, and upon the five sections of the tunnel seventy borers, driven by compressed air, have been kept constantly at work. The shafts are to be employed hereafter for the purpose of ventilating the tunnel. A steam shovel, which was recently invented, has done good service in helping to load the trollies and remove the rubbish.

THE DOME OF ST. PAUL'S.

Sir,—Are your correspondents on this subject architects? If so, they have taken very little trouble to make themselves acquainted with the facts of the case.

There is a famous engraving by Emmett, which was executed under the eye of Sir Christopher, in which there is proof positive that the great architect did not set much store on "the smooth uninterrupted hemisphere of the dome." The dome, as it was carried out by Wren, was honey-combed with panels divided by main styles or ribs into compartments. This panelled surface was faced up to receive Thornhill's work. Thornhill was a coadjutor of Wren's, and Thornhill's designs must have been approved by Sir Christopher. The only decorations originally suggested for the dome were arabesques on the dividing ribs of the panelling. I very much doubt whether any but the horizontal sections of the dome are spherical curves; on this point my memory does not serve me. Moreover, if the main portion of the dome be a section of a hemisphere, its hemisphericity is signally interrupted by the great opening in its centre, from which the crown of the dome takes a second and elliptical curve.

Correggio is regarded by those painters who have made mural painting a study as a decorative artist of the decadence.

A Painter.

GARLANDS ASYLUM, CARLISLE.

Sir,—I observe a paragraph with the above heading in your issue of Feb. 3, with a description of certain large additions which have recently been completed under the direction of Mr. Cory, architect and county surveyor, Carlisle, and stating that "the plans, from the beginning of the asylum, some twenty-five years ago, have all been prepared by Mr. Cory." Without in any way wishing to detract from the part that gentleman has had in carrying out the building, I feel it due to myself to state that the original design was prepared by myself, selected in an open competition, for which I was paid the first premium of 300*l.* This was the first asylum planned on the block system, and I received from my friend Mr. Samuel Gaskell, who was at that time the most active of the Lunacy Commissioners, valuable assistance and advice in the general disposition of the buildings so as to admit of a large future extension.

My design was illustrated in your journal of May 1, 1858, and the Lunacy Commissioners subsequently requested me to allow the plans, as illustrating a principle, to be published in their annual report.

The magistrates, unfortunately for me, reserved to themselves the right to retain the drawings and carry them out in their own way, and availing themselves of this condition, I was obliged to submit to the hardship of losing a very valuable commission which I had thought I had fairly won.

So many years have elapsed that the circumstance had quite passed from my recollection, until reminded of them by the paragraph alluded to. Thos. Worthington.

THE CONSTRUCTION OF THEATRES.

Sir,—It is to be hoped that Mr. Tanner's excellent paper may promote discussion on a subject of professional as well as public interest, and result in a better acquaintance with the principles on which these buildings should be constructed. It must in all fairness be admitted that the designers of many of our modern theatres deserve credit for improved arrangements for both seeing and hearing, with a greater degree of comfort than formerly; but beyond this there is much to be desired. The arrangements of corridors, staircases, and the general approaches, parts of the house with which the public safety is more intimately connected, are, if not altogether neglected, designed on no fixed principles, and without reference to the purposes for which they are intended, viz., the easy removal, from the auditory to the street, of a moving throng of people, without discomfort, and as rapidly as possible. It is true that in many cases the architect is hampered with unreasonable demands; and as these portions of the house are the non-paying ones, it is fair to assume that, in the eyes of a lessee, they should be considered of secondary importance. Still, there can be no excuse offered for staircases leading one on to another, or so long and steep that, in case of panic, they would be of very doubtful service; nor for emergency-doors, with fastenings at the floor-level; nor for steps in passages; nor for awkward, ill-contrived angles; nor for gangways within the house of such narrowed dimensions that they cease to become passages at all; and yet all these defects, and many others familiar to playgoers, may be found in any theatre in London, even those of recent construction.

The high value of ground in any leading thoroughfare will probably never permit the complete isolation of buildings of this class as they should be, nor can sufficient space be allowed for surrounding the body of the house with open corridors, accessible from the different tiers, nor, perhaps, for external staircases from galleries. But there is no reason why the several approaches should not be of larger dimensions, and passages communicating with all parts of the auditory made broad and straight. There can be no better illustration of the dangers attending narrow passages than by taking an ordinary wine-bottle and pouring into it a handful of dried peas. Turn the bottle gently over, and the peas will escape by the neck, one by one. Invert the bottle suddenly, and the peas will remain jammed at the entrance to the neck. This is exactly what takes place in the case of a panic, and therefore necks at theatre-entrances should be unhesitatingly avoided.

Probably there is no one theatre in Europe that could be accepted as a model of its class, or that would meet in every respect the demands of a reasonable criticism, although many might be cited as having points of excellence. At Palermo, for instance, is a large theatre, of recent construction, that possesses nearly all the essentials, both in the auditory itself and its various approaches. Having only a note-book sketch of this building, I am unable to furnish a correct measured drawing of it, but it may suffice to state that it stands in the centre of a large piazza, and is circular in plan, both externally and internally, with porticos on the south, east, and west sides. There is a broad corridor running round the auditory, on the ground-level, and an open loggia over it, accessible from the upper tiers. At the back of the arena, which is of large dimensions, and raised about 4 ft., are two rows of *posti distinti*, corresponding in a measure with our stalls. Behind these, almost on the same level, is a tier of boxes, nineteen in number, and immediately over the boxes, is the dress-circle, four seats deep. The gallery rises behind, separated (architecturally only) by a very effective range of columns, of the

Corinthian order, of large dimensions. The construction is very simple, and the general effect is most excellent. Wall stands upon wall, and as the tiers recede, instead of overhanging, there is no necessity for any of those cumbrous pieces of engineering skill that Mr. Tanner refers to so markedly in his paper.

It is satisfactory to learn that the Metropolitan Board of Works, as constituted guardians of the public safety, have been authorised to take up the question of theatre construction. It is to be hoped that they will succeed in formulating a set of rules for the construction and arrangement of corridors and staircases, enabling the playgoer to enjoy a sense of security he has not hitherto experienced, and consequently reducing the chances of panic to a minimum.

ALEX. GRAHAM.

GAS AND VEGETATION.

SIR,—A visitor to the Electric and Gas Exhibition at the Crystal Palace cannot fail to notice the difference between the old and new styles of gas-lighting. Unfortunately, these burners, which are said to rival the electric light in economy and splendour, have, unlike this new illuminant, a most destructive effect on the trees and plants, which give the interior of the place the pleasing appearance of a winter garden. Although the exhibition has only been opened a few weeks, the foliage on the trees already presents a withered appearance, and the leaves which fall daily show the necessity of providing some better means of carrying off the products of combustion from these regenerative burners, which owe their efficiency to the large amount of air consumed. The quantity of gas used for the exhibition cannot be far short of 10,000 cubic feet per hour, which, according to Herr von Fragstein's tables, would require over 1,660,000 cubic feet of air per hour to make up for the quantity vitiated. Whether the large amount of carbonic acid evolved will have any destructive action on the ironwork remains to be seen, but its effect on the vegetation clearly shows that on one point the electric light has triumphed over its improved rival; and, as a set-off to the expense of electricity, it would be well to remember that cheapened gas-lighting means a polluted atmosphere or the additional expense of efficient ventilating arrangements.

KILLINGWORTH HEDGES, C.E.

GAS FOR COOKING ABROAD.

ACCORDING to the *Gesundheits-Ingenieur* there has been a practical trial of the above system made in the island of Laaland at the town of Naksko, which numbers 3,600 inhabitants. According to the statements published, the cost of gas for illuminating purposes is about 2d. per cubic mètre (about 35 cubic feet), while that used for cooking is supplied at the rate of 1½d. for the same quantity. The communications are brought free into the house, and the gas-meter is supplied at cost price. The internal fittings are put up as economically as they can be with due regard to efficiency, and can be paid for by quarterly instalments, extending over five years, interest being calculated at the rate of 4 per cent. The gas consumed is paid for monthly, but no charge is made for the quantity consumed for cooking during the month immediately following the putting up of the cooking apparatus. One gas jet in the room with the cooking appliance is supplied with gas at the reduced scale of charge. It is said that the population of the little town has evinced its appreciation of the enterprising policy of the local gas company, and that the use of gas for cooking has become general. For small cooking ranges the cost of the gas is said to be from 1s. to 3s. a month. The *employés* of the gas company participate in the profits made according to a graduated scale, and therefore have a direct inducement in the development of the system.

Reports to Local Government Board.—We are glad to hear that for the convenience of members of the medical profession and others, copies of certain of the reports made to the Board by their medical inspectors will henceforth be placed on sale. Many of the reports contain matter of public value. They may be obtained from Knight & Co., 90, Fleet-street, and several other publishers.

THE NEW CHURCH OF THE ORATORY, BROMPTON.

ON Saturday afternoon last a large number of the members of the Architectural Association visited this building. They were received by the architect, Mr. H. A. K. Gribble, and by him the most important features of the building were explained and pointed out. Nearly a year ago (see *Builder*, vol. xlii., p. 248) we gave some account of the building, so that it is not necessary to recapitulate more than a few points. The nave is 51 ft. wide, the sanctuary or chancel 75 ft. in length by 50 ft. wide. The semi-dome over the apse, partly in brickwork and partly in concrete, has been completed. The aisles are 30 ft. wide, and are divided up into chapels, four or five on each side of the nave. The nave is vaulted throughout in cement concrete, composed of ten parts of Portland stone chippings (broken to about a ¾-in. gauge) and two parts of Portland cement. This part of the work has now been completed, and the centering has been struck from some of the compartments. Over the crossing formed by the junction of the nave, transepts, and sanctuary will be a large dome, 51 ft. 6 in. in diameter at the springing. The height from the church floor to the main cornice at the springing of the dome will be 44 ft. 3 in. The height of the dome from the springing to the eye at the top will be about 30 ft. The height from the eye of the dome to the top of the cross surmounting the lantern will be about 38 ft. This dome will be almost entirely of concrete, and will be 2 ft. in thickness at the haunches, gradually diminishing to 1 ft. in thickness at the eye, which will be formed of stone. The lantern which will rise over the eye will be of stone, and is calculated to weigh about 56 tons. The lower portion of this great dome is in brickwork, which has now been carried up nearly to the level for the commencement of the concrete work. Externally this dome will be protected from the weather by an outer dome of timber framing, covered, in the first instance, by zinc. A great deal remains to be done before the church can be ready for opening. It was desired to open it in May next, but we understand that the opening ceremony will probably be deferred until May, 1884. The completion of the western front, including the two flanking towers, appears to be for the present abandoned.

Mr. Joseph Seed is the clerk of works, and the contractor is Mr. George Shaw, of Westminster, whose representative on the building is Mr. Tinckam.

PROPOSED ARTISANS' DWELLINGS AND PUBLIC BATHS IN ST. BOTOLPH'S PARISH, BISHOPSGATE.

THE Vestry of the parish of St. Botolph Without, Bishopsgate, are taking steps for the erection of artisans' dwellings and public baths within the parish. At a meeting of the Vestry held last week, the Rev. William Rogers, the rector, presiding, the question was under consideration, when Mr. Teetgen, who reminded the meeting that the unsatisfactory state of the dwellings in the parish had often been brought before the public, moved a resolution to the effect that it was desirable that a portion of the charitable funds belonging to the parish, and producing about 2,600*l.* per annum, should be applied to the provision in the parish of good and wholesome dwellings, baths, and recreation rooms for the poorer classes, in the place of the tenements which they now occupy. He observed that they had in the parish a whole neighbourhood of buildings in such a disgraceful condition, and so fearfully overcrowded that any diversion of the parish income in that direction would be of inestimable benefit to the parish. The trustees had resolved recently that in all future dealings with the moneys left for the benefit of the poor the sums should be applied where deemed desirable, for the erection of artisans' dwellings in the parish. The scheme, which emanated from the rector, included baths, wash-houses, and other conveniences for the poor. It was incidentally stated during the discussion that the leases of estates belonging to the parish which would be shortly falling in included the Eagle in the City-road. The rector, in supporting the resolution, said that they had even bought the land for the erection of almshouses and artisans' dwellings, but the railway company subsequently required it, and had shut them out. They might not be able to lay out 100,000*l.* or 200,000*l.*, but they could do something towards removing the abominable state of things which at present existed. The resolution was unanimously adopted, and a committee appointed.

Well done, Mr. Rogers! Violent as the accident was that for many months crippled you, it seems never to have depressed your energy or stopped your good works.

WESTMINSTER ABBEY.

A HIGHLY interesting discovery was made on Saturday last (10th instant) during the progress of some alterations in the abbey precincts. The southern side of the main portion of Ashburnham House stands over the wall that returned in a westerly direction from the southern end of the old Dormitory (now the schoolroom). Parts of this wall may yet be seen in the archway of the "dark entry" leading to the big cloisters, and in the more modern wall of Ashburnham House itself. These, with certain massive beams that have recently come to view in that house, and in its boundary-wall and porter's lodge (recently pulled down), are remains of the ancient "Misericorde," where, amongst other uses, alms and doles were distributed to the poor. In removing certain portions of the house inhabited by the late Mr. Turle, which stands between Ashburnham House and the old Dormitory, and which includes work of Henry VIII.'s time, have been found in the wall of the "Misericorde" two Norman windows giving light, curiously enough, to an apartment or gallery upon its southern side. Along the foundations of the wall runs a subterranean passage terminated at one end by a cellar, in Dr. Bridge's house, that bears evident traces of having once served as a latrine of the monastery.

THE LATE MR. C. CHALONER OGLE, ARCHITECT.

IT has been conclusively established, by the evidence taken by the Commission appointed by the British and Hellenic Governments to inquire into the circumstances of the death of Mr. Ogle, that he was murdered by the Turkish or Albanian soldiers on the 17th of March, 1878, about sunset, while proceeding alone and unarmed to Macrinitza, near Volo, in Thessaly, in order to beg the pashas to stop the bloodshed and pillage by the soldiery after the battle of Macrinitza.

The allegation that Mr. Ogle was an insurgent, and was shot with arms in his hands, is abundantly disproved, and it is shown that he had nothing in his hands but a riding-whip, and that his principal object in going to Macrinitza was to fulfil his duties as a correspondent of a newspaper.

Mr. Egerton, in a despatch from Athens to Lord Granville, dated December 18th, 1882, observes upon this point:—"To my mind, the greatest presumption of premeditation is the very falseness of the accusation made on the Turkish side against Mr. Ogle, viz., that he was killed fighting against them armed with a chassepot."

That Mr. Ogle was murdered by the Turks is clear from the evidence, and there are suggestions in the report that there was premeditation, and that some persons in authority were concerned in his death. That he had incurred the displeasure of the pashas by his remonstrances against their cruelty is probable; and the Government, if they are sincere in their desire to arrive at the truth, should not allow the inquiry to end at its present phase, but should offer a reward for the discovery of the murderers. Our relations with the Hellenic Government are of a most cordial character, and they are not likely to put any difficulties in our way, but they cannot be expected to take the initiative. Mr. Ogle was a British subject, and it is for the British Government to take the necessary steps to bring his assassins to justice.

Mr. Ogle is spoken of by every one who knew him in the highest terms. Mr. Egerton says of him:—"From what M. Tricoupi and others have told me, Mr. Ogle was a man of singular promise, and his loss is a loss beyond the immediate circle of his relatives and friends. Though he died so young [he was only 27], he has lived to do credit to the name of England here. The high spirit which he showed in following what he believed to be right, and in denouncing wrong, and his gentle humanity to the weak, will long be remembered in the land to save whose helpless ones he fell."

One of his last acts was to write a pencil note (which has been recently recovered and sent to England) to a shopkeeper at Macrinitza, to provide at his cost for some women and children whom he had rescued from the Turkish soldiery.* J. H.

* See *Builder*, vol. for 1878, p. 436, for Biography of Ogle.

OBITUARY.

Miss Fanny Corbaux.—The death of this self-taught lady artist is announced as having occurred at Brighton, on the 1st inst. Born in 1812, Miss Corbaux at a very early age exhibited a talent for drawing, and though she was unable, through want of means, to go through a regular course of study, she struggled to make up for this deficiency by perseverance in her studies by herself, and in the year 1827 she gained a silver medal of the Society of Arts for an original portrait in miniature, as well as the Isis medal for a composition in water-colours. This medal she also gained in the following year, and in 1830 the gold medal fell to her lot. In this year she was elected an honorary member of the Society of British Artists, and a little later she became a member of the Institute of Painters in Water-Colours, at both of which galleries she frequently exhibited her works. In addition to her talents as an artist, Miss Corbaux evinced a considerable bent for Oriental studies. About ten years ago Mr. Gladstone granted Miss Corbaux a pension from the Civil List in recognition of her services to art and literature.

BUILDING PATENT RECORD.*

APPLICATIONS FOR LETTERS PATENT.

427. C. Weygang, London. Manufacture of fibrous material for floor-cloth, roofing-felt, wall-covering, &c. Jan. 26, 1883.

435. A. R. Holland, London. Ventilation of apartments, &c. Jan. 26, 1883.

436. W. Lord, Middlesbrough. Preventing down-draughts in chimneys. Jan. 26, 1883.

445. P. Born, London. Folding lattice shutter. Jan. 27, 1883.

473. J. Hall, Stourbridge. Porcelain fire-clay baths. Jan. 29, 1883.

481. R. Stone, New York, U.S.A. Apparatus for hoisting stone, &c. Jan. 29, 1883.

489. J. A. B. Bennett, King's Heath, and J. Herd, and B. P. Walker, Edgbaston. Heating and cooking stoves. Jan. 30, 1883.

516. W. R. Lake, London. Apparatus for building arches or domes. (Com. by T. J. Lovegrove, Philadelphia, U.S.A.) Jan 30, 1883.

531. M. Benson, London. Drain-tiles. (Com. by J. Lynch, Washington, U.S.A.) Jan. 31, 1883.

532. M. Benson, London. Terra-cotta tiles, architectural work, &c. (Com. by J. Lynch, Washington, U.S.A.) Jan. 31, 1883.

576. D. F. W. Quayle, Castletown. Window-sashes. Feb. 2, 1883.

578. P. Gay, Paris. Machinery for sawing stone. Feb. 2, 1883.

599. S. S. Hellyer, London. Water-closets and slop-sinks. Feb. 3, 1883.

608. T. Cliffe, Huddersfield. Apparatus for removing superfluous body and glaze off enamelled bricks, &c. Feb. 5, 1883.

615. T. Webster, Edinburgh. Apparatus for closing and opening curtains. Feb. 5, 1883.

619. G. W. von Nawrocki, Berlin. Hinges for doors, &c. (Com. by O. A. Ludewig, Stettin.) Feb. 5, 1883.

637. W. White, London. Rendering existing walls damp-proof and tiles therefor. Feb. 6, 1883.

651. H. C. Symons, London. Apparatus for raising, &c., weights in water-closet levers, &c. Feb. 6, 1883.

656. W. M. Hobson, Birmingham. Arrangement of tesselated tiles, &c., to buildings. Feb. 6, 1883.

684. J. G. Stidder, London. Apparatus for supplying trapping, &c., arrangements for sanitary and sewage purposes. Feb. 7, 1883.

695. J. Hay and G. Robertson, Glasgow. Window-sashes. Feb. 8, 1883.

NOTICES TO PROCEED

have been given by the following applicants on the dates named :—

Jan. 30, 1883.

4,550. J. Shaw and F. Milan, Lockwood. Apparatus for indicating the presence or absence of water in cisterns, &c. Sept. 25, 1882.

Feb. 6, 1883.

4,726. W. A. Barlow, London. Door, lock, or latch checks. (Com. by F. W. Boldt and P. C. A. Vogel, Hamburg.) Oct. 4, 1882.

Feb. 9, 1883.

4,715. J. Bateman, London. Stoves and fireplaces. Oct. 4, 1882.

4,727. W. A. Barlow, London. Trapping sewers and drains. (Com. by L. Henry, Brussels.) Oct. 4, 1882.

ABRIDGMENTS OF SPECIFICATIONS.

Published during the Week ending February 3, 1883.

2,783. H. J. Haddan, London. Machinery for cutting and dressing stone. (Com. by A. McDonald, Massachusetts, U.S.A.) June 13, 1882. Price 6d.

This relates to adjusting and working the rotary disc cutters of stone-dressing machines.

2,806. S. Deards, Harlow. Securing sheets of glass, metal, &c., for roofing and other purposes. June 14, 1882. Price 6d.

The sheets of glass, &c., are held by strips of metal of an elongated x form, the edges of the sheets being held between the jaws of the x, while the strip of metal is secured to the rafter through the web joining the two sides of the x.

2,829. R. R. McKee, Kirkcaldy. Water supply and regulating apparatus for flushing-drains. June 15, 1882. Price 6d.

This consists of an automatic apparatus in a tank whereby the tank is periodically emptied into the drain.

2,850. J. H. Johnson, London. Supplying and distributing water to and in houses, &c. (Com. by A. Dumas, Paris.) June 16, 1882. Price 6d.

The service-pipes are all small ones, and a series of closed tanks are provided about the house where the water is required. (*Pro. Pro.*)

2,935. A. Clark, London. Fireproof screen for separating the stage from the auditorium of theatres, &c. June 20, 1882. Price 2d.

This consists of a double screen of iron or steel plates, the space between which is filled with water or any non-conducting substance. (*Pro. Pro.*)

2,940. T. Beddoe, London. Apparatus for supplying disinfectants to water-closets, urinals, and drains, &c. June 21, 1882. Price 2d.

The disinfectant mingles with the flushing water as it enters the basin. (*Pro. Pro.*)

Published during the week ending February 10, 1883.

2,670. C. J. T. Hanssen, Fleusburg, Prussia. Plugs for connecting service-pipes to water and other mains. June 7, 1882. Price 6d.

Hollow plugs are screwed into the main, which are closed by plugs of hard sugar protected on their undersides next to the main by layers of insoluble material. When the connexion is made a little water poured in from the outside dissolves the sugar plug, and the insoluble material gives way under the pressure in the main, and the connexion is opened.

2,834. A. M. Clark, London. Water-closets, &c. (Com. by J. J. B. Frey, New York, U.S.A.) June 15, 1882. Price 8d.

The valve on the discharge-pipe is a ball of indiarubber, and round the spindle thereof is fitted a spring to keep the ball down on its seat. When the pull raises the ball the cistern valve is also opened, and a flush effected. At the same time the drip tray is also flushed through a flushing-rim formed round it. To connect the porcelain pipe of the closet with the metal pipe a screw-sleeve passes over the end of the porcelain pipe and engages an external thread on a ring passed over the end of the metal pipe, thereby bringing the two parts tight together.

2,868. J. Thomas, Bangor. Apparatus for cutting and shaping stone. June 17, 1882. Price 6d.

This consists of an apparatus wherein the block is placed on an anvil, and a succession of blows are struck on it in the required place by a series of hammers driven by machinery.

2,926. A. K. Robinson, Leeds. Cooking ranges and stoves. June 20, 1882. Price 6d.

A bonnet is fitted to closed fire-ranges to pass the steam and gases direct to the chimney.

2,986. J. McDougall, Glasgow. Apparatus for regulating the supply of water to water-closets. June 23, 1882. Price 2d.

The handle actuates two valves, one at each end of a long-closed tank, by one of which water is admitted to the tank, and by the other is passed to the closet. (*Pro. Pro.*)

2,994. R. Jackson & S. Jackson, Broad-bottom. Ash-receiver. June 24, 1882. Price 2d.

A metal box is fitted below a grating beneath the fireplace into which the ashes fall, while the cinders are arrested by the grating. (*Pro. Pro.*)

3,009. W. S. Morton, Edinburgh. Fireplaces. June 26, 1882. Price 6d.

Receptacles for fuel are formed in the hobs or sides of the fireplace.

3,028. J. W. Cook, London. Forming temporary partitions in class-rooms, &c. June 27, 1882. Price 2d.

Flaps are hinged to the backs of the forms which, when turned up, form the partitions. (*Pro. Pro.*)

5,165. A. M. Clark, London. Gas cooking stoves and ranges. (Com. by W. W. Goodwin, Philadelphia, U.S.A.) Oct. 30, 1882. Price 4d.

A flue is so arranged above the burner that while no heat is abstracted all the noxious products of combustion are carried off to the chimney.

* Compiled by Hart & Co., Patent Agents, 186, Fleet-street.

AN ARCHITECT'S CLAIM.

HESKETH *v.* ROLLWAGEN.

THIS case, tried at the Liverpool Assizes on Saturday last, before Mr. Justice Kay and a special jury, was a somewhat singular one. The plaintiff, Mr. William Hesketh, architect, Liverpool, sought to recover from the defendant, a waiter at the Alexandra Hotel, Dale-street, money due as commission for professional work done. The defence was that the work had not been carried out according to the instructions given. Mr. Russell, Q.C., M.P., and Mr. Carver were for the plaintiff, and Mr. Gully, Q.C., and Mr. Stewart for the defendant.

Mr. Russell said the action was brought to recover between 200*l.* and 300*l.* for work done by the plaintiff in the capacity of an architect. The defendant became interested with a man named Copestake about July last, in some land at Heswell, which is midway between West Kirby and Parkgate, and upon this property they contemplated the erection of an hotel. The plaintiff was applied to by Copestake, who took him to the defendant, and it was explained that, as there was no hotel in the neighbourhood of Heswell, it might be a good speculation to build one. It was necessary to at first procure a licence, the magistrates by a recent Act having power to grant a conditional licence on plans being submitted to them. It appeared, however, that there was a rival aspirant for hotel-keeping in the village, a man named Bainbridge having purchased some house property, which he proposed to alter so as to adapt it to the business of an hotel. The defendant, being of opinion that this would not satisfy the magistrates, instructed the plaintiff to prepare his plans, the commission agreed on being 2½ per cent. on the cost of the building if the plans were not carried out, and 5 per cent. if they were. The application for a provisional licence came before the magistrates on the 31st August, but as the plans did not show stabling accommodation the consideration of the subject was postponed till the following licensing sessions. The plaintiff was thereupon instructed to provide the plans, and did so. He also prepared an estimate of the cost of the building, putting it down at from 8,000*l.* to 10,000*l.*, the stabling being for about sixty horses. The plans were again submitted on the 28th September, and the provisional licence was granted, and confirmed on the 7th October. The defendant then instructed the plaintiff to have the plans, tracings, and specifications completed by the 16th November, but between that date and the end of the month the defendant seemed to have changed his mind, and affected to be surprised at the plaintiff's estimate of the cost of a new hotel, and refused to pay a penny for all his labours. The plaintiff stated that no limit was given as to the cost of the hotel, the defendant on the other hand saying that a few thousands were not material, he having friends to help him; and Mr. Bainbridge deposed to the defendant paying him 150*l.* to buy off his opposition to the erection of the hotel as designed by the plaintiff, in respect to certain restrictions on land required for the scheme.

The defence was that the plans exceeded in cost the instructions given, and that the plaintiff was expressly informed of the extent to which the defendant would go, namely, about 3,000*l.*

The jury awarded the plaintiff 200*l.*

PAYMENT FOR MEASURING VARIATIONS IN CONSTRUCTION.

SIR,—Regarding the question of your correspondent, "A. Z.," in your last issue, may I be allowed to state an opinion as to the custom which, in ordinary cases, I believe would be applied, as being the reasonable thing, by those architects and surveyors of good standing who practise in the leading centres, and possibly elsewhere, in dealing with variations of addition and omission, during the construction of a building, arising out of the from time to time modified views of the proprietor or architect; and, I am bound to say, generally occurring at the instance of the former, whose mind would seem to have become curiously clearer in regard to his wants during the progress of erection than at the time of signing the contract.

In these remarks I allude to any building erected for a stated sum, for which quantities may or may not have been originally supplied, the contractor having performed his part honourably and thoroughly to the end, and having only obtained fair remuneration for his work.

Assuming, then, that no special clause had been inserted in the signed conditions of contract binding the contractor to pay the whole or part of the measuring charges, he would not, or should not, be called upon to pay the same out of his own pocket; and because he is assumed to have made no provision for it in his estimate, for unless clearly so stated in the conditions he could have no object in increasing the estimate (especially in these days of close competition) by making an unasked-for provision; but if, on the other hand, a clause should exist in the conditions binding him to pay them, he would be called upon to do so, and this without any hard-

ship, for he had made provision for them in his estimate, or if not, that would be his own matter.

In result, it should make no difference to the proprietor whether he or the contractor agrees to pay the measuring charges, and for the reason that, if contractor pays, they are generally added into the certified amount the proprietor has to pay at settlement; and if he pays them direct out of his own pocket they are, of course, not so added.

Of course there are exceptional cases constantly cropping up to which ordinary custom could not be justly applied, as, for instance, where one side seeks to gain an undue advantage over the other, or all may be tinged with the same hue; and in such cases a very decided opinion, based upon the ordinary custom, and given without being conversant with the whole history of a structure from beginning to end, might prove to be misleading, — altogether unjust to the fair interests of all concerned. N.

DAMP AND POROUS WALLS.

SIR,—I note your correspondent, "House Agent," [p. 160, *ante*] writing from Bristol, a neighbourhood suffering in a very large degree from the recent floods, wants to know if there is any cheap method of rendering walls impervious to wet.

As "House Agent" very pertinently remarks, this is a very serious matter, and no one, save doctors, has any conception of the amount of illness and death brought about by people inhabiting damp houses. I am glad to be in a position to point out to your correspondent a cheap and absolutely effective remedy, viz., the Hygeian-Rock Building Composition, of which I am patentee, and if he will put himself in communication with me, I shall be glad to give him particulars of cost, &c.

My composition has now been before the public for twelve months, during which time it has been extensively used and put to some very severe tests, and has given universal satisfaction. Any walls built upon my system, and with the aid of my composition, I will guarantee to be absolutely impervious to wet or damp of any description, no matter how thin the walls, how porous the bricks, or how bad the mortar; and this can be accomplished without any additional cost, inasmuch as the composition imparts so much additional strength to the walls, that a reduction in their thickness can be made, equivalent in cost to that of the composition.

I have also perfected a system for applying my composition to existing damp or wet walls, the *modus operandi* being as follows:—In the first place the plaster is removed from the face of the wall, and the joints well raked out; then a cavity for the reception of the composition is formed by means of a specially made "locked tile," which is vertically fixed against the wall by means of a temporary cramp, behind which the composition is poured in a hot liquid state, and when cooled and set, which takes place in about five minutes, fixes the tiles, and forms an absolutely impervious lining to the walls, with a honeycombed undercut surface upon which a render of plaster or mastic cement can be placed, and the wall be prepared for decoration within six days from the time of taking off the old plaster; and in this manner any wall, however wet, can be made permanently dry by the introduction of a vertical impervious lining, not exceeding seven-eighths of an inch in thickness, which can be applied either internally or externally.

WILLIAM WHITE.

No. 3, Westminster-chambers, S.W.

LAMBETH PALACE.

SIR,—As in your notice of Mr. Cave-Brown's most valuable work on Lambeth Palace you have been good enough to refer in terms of praise to the Society for Photographing Relics of Old London, you may, perhaps, allow me to mention that the Society are now preparing to issue, as a part of this year's series, three views of portions of the Palace, —the gatehouse, the exterior of the hall or library, and the so-called Lollards' Tower.

ALFRED MARKS.

DAMP HOUSES AT BRISTOL.

SIR,—If your correspondent "House Agent" chooses to inquire, I think he may, in his own city, come across a manufacturing firm who can supply an article that may possibly partly serve, if not entirely, his purpose. I allude to the firm of Messrs. A. T. Morse & Co., Perry-road, St. Michael's, Bristol, makers of the Patent Calcarum Washable, Damp, and Heat Proof, Water Colours. If not, I must refer him to numerous silicate paint manufacturers, both in London and the provinces. It is a pity that the Local Authority, or its officers, does not interfere to prevent such nests of disease continuing to exist, much less to be erected, very often with little or no concrete footings, or asphalte, or other suitable damp-proof course, so frequently occurring nowadays.

CAMDEN TOWN.

CAUTION.

THERE is a man just now calling upon architects stating that his father had done business with them, and soliciting money, sometimes as a gift, at others as a loan. He gives the name of Smith, and his head is utterly without hair. The sums he has received range from 2s. 6d. to two guineas.

BANKRUPTCY LAW.

SIR,—As it is probable an alteration will be made during the next session of Parliament in the existing scandalous condition of the law on bankruptcy, it is to be hoped it will be done thoroughly, and not leave so many loop-holes for dishonest traders. Out of the 9,700 cases of insolvency last year, 3,500 were compositions; 54 per cent. of these paid under 6d. in the pound, and 82 per cent. under 5s. in the pound. The number of cases are on the increase, and the amounts paid are diminishing. Where one man comes to grief through misfortune 100 come to the same end by dishonesty. No wonder one of our judges lately stated sarcastically he was surprised that as long as the law stood in its present unsatisfactory state any man who studied the interests of his family should think of paying 20s. in the pound. Leniency should be shown to any man who can clearly show he cannot meet his demands through misfortune, but severity should be shown to rogues. It is quite a common practice nowadays for unprincipled scoundrels to submit estimates for work at ruinous prices, never intending to pay for the material; and they also divide their work out to other masters, and cheat them openly under the protection of the law. I know of many cases in my own experience where work has actually been taken below the honest price of the material. Architects would do well not to encourage this system, but know something of those whom they employ, and adopt the man whose price is nearest to the surveyor's estimate. Unless some alteration is soon made the whole trading community of the country must come to grief.

ROBT. PEARSE.

CHRIST CHURCH CATHEDRAL, DUBLIN.

SIR,—In the book which you so favourably reviewed in your wide-spread journal on the 3rd inst., on the restoration of Christ Church Cathedral, Dublin, published by Messrs. Sutton Sharpe & Co., the late Mr. G. E. Street, R.A., says:—"The risk and difficulty and consequent anxiety in undertaking such a work was very great," &c. . . . . "and the work was done throughout, thanks to the energy and skill of the clerk of works (Mr. Doolin) and the builders (Messrs. Cockburn) without a sign of a crack or settlement." So far as the name of the clerk of works is concerned I feel extremely sorry such an error should have remained uncorrected before it came before the profession and the public, as I superintended the most important and largest portion of the restoration under the late eminent architect. I feel all the more grieved about the occurrence as I have lost during the last few weeks the appointment on some most important works to be carried out from similar misrepresentations. I hope for justice sake you will give the above correction as prominent a place in your next issue as you can give it.

WM. CONRADI, late Clerk of Works at the Christ Church Cathedral, Dublin.

FINCHLEY SCHOOL COMPETITION.

THE following is the result:—

1st Premium, "Knowledge is Power," Dunk & Geder, 36, Leadenhall-street.

2nd Premium, "R.R.R.," Chas. Bell, 9, New Broad-street.

3rd Premium, "Lux," C. E. Sayer, 17, Soho-square.

Professor T. Roger Smith acted as referee.

BUILDING DISPUTES AT THE BOW COUNTY COURT.

THE Judge of the Bow County-court has just had before him two cases in which parties connected with the building trade were respectively plaintiffs and defendants.

WRONGFUL DELIVERY OF TIMBER.

In this case, Mr. Lamont, the plaintiff, is a timber merchant, residing at Leyton, and the defendant, Mr. Cotes, is a builder, at Bow, and the action was brought to recover 9*l.*, the value of timber wrongfully delivered to the defendant. It appeared from the facts of the case, as stated on behalf of the plaintiff, that he purchased the equity of redemption of certain property of William Cotes, brother of the defendant, and afterwards purchased for William Cotes, from Messrs. Gunton & Co., a quantity of timber of the value of 9*l.*, to be delivered to and used by him for building purposes. The defendant, who was also building close to the spot, got possession of the timber by mistake, and used it in his own buildings. On the plaintiff speaking to the defendant on the matter the latter asked him to treat him as his customer, which the plaintiff refused to do, and shortly afterwards he heard of the defendant's liquidation, of which he had no notice. He (the plaintiff) had paid for the timber.

In answer to the claim, the defendant replied that the goods were delivered to him by mistake, and he afterwards asked the plaintiff to allow him to be his debtor.

His Honour, in giving judgment, said,—"You should pay the money and end the matter. Be honest if you can, and do not shelter yourself under bankruptcy." The judge then amended the summons for "detention of property or value thereof," and gave judgment for the amount claimed, payable in a week, or formally the property to be given up.

CHARGING FOR FOREMAN'S TIME.—FRENCH *v.* GENTRY.

IN this case the plaintiff is an engineer at Whitechapel, and the defendant is a builder, of the Longthorne Works, West Ham, Stratford. The action was brought to recover 14*l.* 10s. for fitting up a steam-boiler at the defendant's works at West Ham. The defendant had paid 10*l.* 11s. 6d. into court, and before the case was gone into, the solicitor who appeared on behalf of the defendant said that he objected to pay the amount charged for foreman's time in superintending the job, and the arguments in the course of the hearing of the case turned upon that point.

On the part of the plaintiff, it was stated that he paid his foreman 1s. an hour for going to the job, and allowance was made for superintendence. It was the custom of the trade.

His Honour observed that a man was allowed to charge time for going to a job, but the plaintiff could not get it in two ways.

The defendant said he employed a large number of hands, and had twenty foremen. He sent out foremen to superintend his work, but never charged for them. He had paid dozens of bills, but never before had such an item charged to him.

In answer to the judge, he said, "I live by the profits on the men's time and the materials, but I am charged twice for it in the plaintiff's bill."

The plaintiff, in reply to the judge, said that if he had had no foreman he should not have charged for his time in superintending the work.

The judge said that the charges for superintendence were not maintainable, and gave judgment for the defendant.

THE ADELPHI THEATRE.

ON the 8th inst., at Bow-street Police Court, Messrs. A. and S. Gatti attended before Mr. Flowers to a summons taken out by the Metropolitan Board of Works for unlawfully making default in complying with a notice requiring them to make certain alterations necessary to remedy structural defects in the Adelphi Theatre.

Mr. Besley appeared in support of the summons, and said the proceedings were instituted under the 11th section of the Metropolis Management and Building Act Amendment Act, 1878. With reference to the facilities given to the public for egress from the theatre there was nothing to complain of, as the theatre was provided with several doors. In April last, however, Captain Shaw inspected the theatre, and, in consequence, the defendants were served with a notice to effect certain alterations included in a list of eight requirements. A proscenium wall was to be built in brick between the stage and auditorium, a portion of a house in Maiden-lane, used as a scene-shop, was to be separated from the rest of the house, and the house was to be separated from the stage by a brick wall, all openings in such wall to be closed by wrought-iron doors. The ceilings in the auditorium and other parts of the theatre were to be made fire-resisting, and hand-rails were to be fixed in different parts of the house. The gallery door was also to be made to open outwards. Formal notice to carry into effect the requirements of the Board had been served on the defendants in June last, but they had neglected to make the necessary alterations. They were consequently liable to be fined 5*l.* per night, which would make a total of 200*l.* Since these proceedings had been instituted, however, the defendants had given an assurance that the work would be proceeded with at once. It was, therefore, suggested that a fine should be imposed for two nights, making 10*l.*, and the case be adjourned for a month to see whether the requirements of the Board were completed. If they were, no further steps would be taken.

Mr. Flowers imposed a fine of 10*l.*, and granted the adjournment asked for.

STAINED GLASS.

Pendleton, near Manchester.—The Bishop of Manchester has lately unveiled the five-light east window of St. George's Church, Pendleton, near Manchester. It represents the Ascension of our Lord, and has been subscribed for by the miners of the neighbourhood. The artists are Messrs. Mayer & Co.

Galway.—A large stained-glass window has been given to the Church of St. Nicholas, Galway. It is in the east end of the church, and consists of five compartments, representing Christ as the Good Shepherd, raising of Jairus's daughter, our Lord in prayer, Christ calling little children, and Mary at the sepulchre, while the tracery contains a bust of St. Nicholas and angels. The window is by Messrs. Mayer & Co.

VARIORUM.

When the first edition of Street's "Indian and Colonial Mercantile Directory" came before us, we were impressed by the extent of ground covered, and the amount of valuable information given, and gladly expressed approval of the book. In the edition for the present year the number of towns and cities has again been increased, as well as the number of maps. As before, the leading merchants and traders of every class, likely to be of any use to manufacturers and all engaged in commerce, are fully enumerated, together with the leading professional men, and concise descriptions of each country and town are furnished, with a view more particularly to show their commercial capabilities and peculiarities.——The "City of London Directory for 1883" seems again increased in size. Amongst its chief features are: A Street List, clearly arranged. Every house, occupier, and the business carried on, is given, and the floor occupied. Alphabetical List, name, address, and business of everybody in the City of London. Livery Companies of London. Valuable information, not to be found in any other work, is given in this section concerning these ancient Guilds of the City, halls, names of the masters, wardens, officers, fees, particulars of charities, gifts, &c.; and a coloured map gives the parish and ward boundaries, and improvements to date of issue.——The new number of "Our Homes, and how to make them Healthy" speaks thus as to iron stoves:—"Iron is a very useful material for stoves. Iron lends itself readily to convenient forms, and it is a very good conductor of heat. The consequence is that iron has been more largely used than any other material for stoves. There are, however, several serious objections to iron stoves, especially for small rooms. A long flue-pipe is unsightly, and on that account often inadmissible. Iron stoves heat rapidly, and easily become red-hot, therefore the effect produced is unequal both on the air and on persons in the vicinity of the stove. An iron stove cools down with rapidity when the fire is low. The flue-pipe gives out unequal degrees of heat in the different parts of its length. With an iron stove the temperature, at 18 in. from the stove, has been found to exceed, by 27° Fahr., that observed at 6 ft. from it; and with a red-hot stove the difference in that short distance has been found to be in some cases as much as 45°. Carbonic oxide has been found in air heated by iron stoves. This can only occur provided the stove be very highly heated; but a high temperature is a liability to which many iron stoves are subject. Iron, very highly heated, may take up the oxygen from the carbonic acid prevalent in the air of an unoccupied room, and thus reduce the carbonic acid to the condition of carbonic oxide. Moreover, the quantity of dust in a room, which almost always contains organic matter, may, under these conditions of temperature, somewhat influence the presence of carbonic oxide. General Morin alleges that he found the effects to be nearly three times as great with cast-iron as with wrought-iron stoves. It has also been alleged that the carbonic oxide generated in the flue may permeate through the cast-iron of the stove, if very highly heated or if made of inferior porous metal, into the surrounding air. Carbonic oxide may also be produced by the oxygen of the air acting on the carbon in the cast-iron if heated to a red heat. The effect would be diminished by the presence of moisture in the air. Consequently, the use of vessels containing water on metal stoves has been recommended. The use of surfaces of iron heated to a red heat for warming air for ventilating purposes is objectionable. Hence, whenever iron stoves or cockles are used for heating air, care should be taken to prevent the iron from attaining a high temperature, and with this object all iron stoves should have a lining of fire-brick, so as to prevent the fire from coming in direct contact with the iron; such an arrangement prevents these incoveniences, and preserves greater regularity in the heating of the air."——Cassell's "Household Guide" for February gives useful hints on lawns. "It would be impossible to state dogmatically at what intervals a lawn should be mown, as this must much depend upon the season, the state of the weather, and the rapidity with which the grass grows. It is, however, always desirable to begin mowing before the grass has attained undue length in the spring, and during the summer to cut it as frequently as possible; a week is the extreme period during which it should be left throughout the grass-growing months, and, to keep the lawn in really fine order, it should be mown much oftener. With the machine mower the labour of going over a lawn on which the grass is short is very slight, and the roller attached to the machine will then be generally sufficient to keep down worm and ant-hills. In those cases where worms are so numerous as to become a nuisance, they may be destroyed by sprinkling the plot, through the rose of a watering-pot, with water into which, on the previous day, hot quick-lime has been thrown, in the proportion of six or eight pounds to the hogshead; it is, however, doubtful whether worms are not frequently as beneficial as hurtful by rendering the ground porous and admitting air to the roots of the grasses. Where such weeds as plantain or ribbed grass exist they should be carefully rooted out, as they will destroy all the finer grasses near them. Moss, which results from poverty of the soil, is best destroyed by enriching it with top-dressings, such as guano, soot, fine compost, lime, &c., applied early in the spring, and well brushed in. Treating the lawn in this manner, and using a collecting mower, is, in the opinion of some persons, preferable to the practice of scattering the grass; but the latter mode certainly affords nourishment to the grass."

Miscellanea.

House-Builders' Eccentricities. — The *Medical Press and Circular* speaks strongly of some of the arrangements at the much over-praised Bedford Park. The writer says, speaking of the houses:—"The arrangement of the domestic offices is frequently carried out with almost perfect neglect of all sanitary precautions. We particularly refer to the fact that the 'larder,' in which the food of the unfortunate families destined to live in the houses is placed, is invariably *next to a water-closet*, and in the majority of cases the doors opening into the two receptacles, for *ingesta* and *ejecta* respectively, are directly contiguous, while in even the best constructed only a partition wall divides the two compartments. Such a disposition cannot be at all a necessary arrangement, as the merest inspection suffices to indicate; and in a district which appears to be growing very rapidly in public favour, and to be each year more thickly populated, immediate steps ought to be taken under authority to prevent the repetition of blunders so glaringly detrimental to the preservation of health."

Huddersfield Fine Art and Industrial Exhibition, 1883. — The Council of the Huddersfield Technical School and Mechanics' Institute have decided to hold a Fine Art and Industrial Exhibition, in connexion with the opening of the new Technical School and Mechanics' Institute in June next, and a large committee has been appointed for that purpose. The new building, now nearly completed, together with a large shed for machinery, and a spacious annexe to be erected on the adjoining land, will provide ample room for a most extensive exhibition. The large shed being lighted from the roof is admirably adapted for the exhibition of engines, mechanical tools, and machinery in motion, which it is intended to make a very important and prominent feature in the exhibition. There will be a large and attractive collection of paintings, water-colour drawings, statuary, and other works of art. Applications for space must be sent in not later than the 21st of February, 1883, to Mr. Austin Keen, secretary.

The Calcutta International Exhibition, 1883.—The requisite new buildings adjoining the Imperial Museum are now being erected under the superintendence of Colonel the Hon. S. T. Trevor, Royal Engineers. Invitations have been sent throughout India to all the rajahs and princes, inviting them to contribute to the Indian display, which is to be on a very grand scale. The machinery department is expected to attract much interest.

School of Art Wood-Carving. — It is worth mentioning that in this school, held at the Royal Albert Hall, Kensington, in connexion with the Technical Institute of the City and Guilds of London, free-studentships in both the day and evening classes are at present vacant. Application should be made to the Manager of the School, Royal Albert Hall.

Owermoigne.—The parish church of Owermoigne, Dorset, has been reopened, after having been almost entirely rebuilt,—a work rendered necessary by the dilapidated and dangerous condition of the church. The walls were decayed and bulging, the roof showed signs of probable speedy collapse, the south porch was a good deal out of the perpendicular, and as for the pews, many of them had been repaired with portions of tea-chests and odd pieces of wood. By a bequest of the late Rector, supplemented by the liberality of his nephew, the present lord of the manor (Mr. Cree), funds were provided for carrying out the works. It was originally intended merely to place a new roof upon the old walls and generally renovate the church, the sum of money referred to having been left for this purpose only, but it was found the walls were in so decayed a condition as to be unsafe, and it was subsequently decided to pull down the whole of the building, with the exception of the tower, and rebuild it, Mr. Cree undertaking to bear the extra cost. The faculty for carrying out the restoration was granted to him by the Bishop, and plans of the needed alterations were designed by Mr. S. Jackson, architect, of Weymouth, and, having been approved, were entrusted to Mr. John Beer, builder, of Wareham, to carry out. The work was commenced last April. The total cost of the alteration was upwards of 1,000*l*. The original stone facing of the building has been utilised for the same purpose in the rebuilding. No variation has been made in the form of the church (except the addition of a vestry), which consisted of a nave, chancel, and transept. The style of architecture of the old church, which appeared to have been built at three different periods, was a mixture of Early English and Perpendicular. The architect in the restoration has followed the latter style. The tower arch, which was formerly closed up and hidden by a hideous gallery, has been thrown open and restored. The western window has also been carefully restored. The nave is divided from the chancel by a bold moulded arch in character with the old tower arch. The transept has a similar arch. The whole of the window and door dressings are new and of Portland stone, except the three windows on the north and south sides of the chancel, which have been restored. The east window is new, and is filled with stained glass. The centre light represents Christ, the Light of the World, that on the left St. Mary, and on the right St. John. The colours are tastefully arranged. The window is the gift of Mrs. Stone, and is in memory of members of her family. It was supplied by Messrs. Heaton, Butler, & Bayne. The interior walls above the seats are stuccoed; below they are finished with Portland cement. The roofs are open-timbered, boarded alternately with pitch-pine and red deal on the purlins and principals. The timber is all wrought, stop-chamfered or moulded, and varnished; the whole is covered with Bridgwater tiles. The church is heated by a Porrett's stove. The approach to the church has been much improved by the removal of the steps and lowering the path. The stone dressings and other Portland stone were supplied by Mr. R. Greenwood, of Weymouth.

Rye.—Sir E. Watkin, speaking at a meeting at Lydd, Feb. 13th, which resolved to petition the Houses of Parliament for a fuller inquiry into the claims of Dungeness to be converted into a harbour of refuge, said that, after a careful study of the subject, he had come to the conclusion that Dungeness was the proper site; and, on economic as well as philanthropic grounds, the absence of exertion on the part of the Government in the matter was supremely reprehensible. From a Parliamentary return it appeared that in the limited period of fifteen years the loss of property,—to say nothing of invaluable lives,—from Folkestone to Dungeness, through the absence of a harbour of refuge, represented a sum far in excess of any estimate yet advanced for ample and magnificent works at that spot. The undertaking was not a competition with Dover. Lord Brabourne thought that a fuller inquiry was needed.

The Tyndale Memorial.—The memorial statue of the martyr, William Tyndale, first translator of the New Testament into English, is to be cast in a few days, and it will be placed at the west end of the West Garden on the Thames Embankment. The statue, designed by Mr. J. E. Boehm, represents Tyndale in his doctor's robes, with his right hand on an open New Testament.

Art Foliage.—Mr. J. K. Colling, of London, delivered a lecture on "Art Foliage" at a meeting of the Leeds Architectural Association last week. Mr. Corson occupied the chair, and briefly introduced the lecturer, who began by saying that few attempts had been made in modern times to give architectural foliage its proper character of art workmanship. We go on reproducing and copying the works of former ages, and appear to be quite satisfied if in doing this we are able to produce a tolerably faithful imitation of old work. Why should not nature be appealed to? Why should not natural form be conventionalised and adapted instead of ancient forms revived? He confined himself here to architectural foliage carving, and did not claim for it a position above the subordinate one as an accessory to architectural ornament, and therefore subservient to the form of the work itself. When designing foliage, nature should be faithfully and constantly referred to; its endless beautiful forms should be drawn and stored up for future use. Yet these natural forms must in some degree be rendered differently; in other words, they must be conventionalised or altered sufficiently to make them applicable and suitable to the various purposes for which they were designed. No positive rules could be laid down for the manner of doing this. Every age had its own peculiarities, and every people their conventional mode of expression. Experience, too, had taught us that foliage and flowers could not be represented precisely as we saw them in nature. They must be modified according to the material in which they were wrought. For instance, carving in statuary marble allowed a closer approach to nature than could be the case with coarse sandstone; while the pattern on wall-paper might be a more direct imitation than architectural carving. In carving, we had to study chiefly form and light and shade. In form, we had first to decide upon the most proper laying or setting out of the lines before clothing them with foliage. To avoid monotony it would be advisable to introduce animal form among the foliage, as was often done in Mediæval work. The artist should not allow himself to be fettered by the forms in nature, but should work upon broad principles. In art, as in nature, there should be constant variety and change. No two designs in foliage should be precisely alike. Yet wherever Corinthian capitals were chosen for a building the same patterns,—accurately taken from some well-known example,—were used. This could not be true art. The designs seemed more like work turned out by machinery than by men. He urged artists and architects to strike out into new and independent combinations from nature. Great improvements had been made in carving within the last forty years, but we were still far behind the ancient schools in this class of work. There was a wide field in which we might go far beyond anything done by the Greeks or the Goths. Unfortunately, at present there was a distinct inclination to omit foliage from architectural ornament, or to confine it to a panel or two with a sunflower. Good foliage carving need not necessarily be dear, and all architects might work together to render it less expensive and more attractive and varied. The lecture was illustrated by means of numerous diagrams, in which Mr. Colling pointed out the combinations and arrangements of foliage ornaments.

Lectures on the Development of Ornamental Art.—The Painters' Company have arranged with Dr. G. G. Zerffi, one of the examiners and lecturers of H.M. Department of Science and Art, to deliver in Painters' Hall, Little Trinity-lane, near the Mansion House Station, three lectures on the "Historical Development of Ornamental Art" (illustrated by diagrams), specially addressed to operative painters and decorators. The first lecture will be given on Friday, February 23, at eight p.m., and treat of the origin of ornamentation, ornamental art in Asia, Greek, Roman, and Pompeian art.

Earley Church, Reading.—This church has been recently lighted up with some ornamental gas-fittings, from the designs of Mr. Francis Bacon, architect, Newbury, the work being carried out by Messrs. Jones & Willis.

Ramsgate.—A large addition to the Convent of the Assumption, Ramsgate, has just been commenced, from the designs of Messrs. Pugin & Pugin, of Westminster and Ramsgate. Messrs. L. H. & R. Roberts, of Islington, are the contractors.

Strong Rooms.—Messrs. Chubb & Son have just completed at their works at Glengall-road, Old Kent-road (which now contain the whole of their manufacturing departments), a large Fire and Thief-Resisting Room for the Credito Publico Nacional of Buenos Ayres. It is 9 ft. 10 in. high, by 15 ft. 9 in. wide, by 8 ft. 4 in. deep, and is made of wrought-iron boiler plates ½-in. thick, rebated at their edges, and secured by angle iron, bars, rivets, &c.; an air-chamber and cases of non-conducting material make up a thickness of 5 in. Its total weight is 43,988 lb. Entrance is obtained through doors of steel (with an inner flame-proof door), secured by a number of heavy bolts, which are locked by a small key of the size of an ordinary latch key. The inside is fitted with shelving, &c. The work of erecting this room has occupied the workmen for four months. It will now be taken to pieces, and re-erected at Buenos Ayres by Messrs. Chubb's workmen; when it will be used for securing the books and papers of the Government of the Argentine Republic, who, some years ago, when the Government offices were destroyed by fire, had their important state documents saved in Chubb's Safes. They have also completed a larger strong room, measuring 9 ft. 6 in. high by 17 ft. 3 in. wide by 15 ft. deep. It is not intended to be fire-resisting, as it will be fixed inside a fire-proof building, but the plates used in its construction,—sixty in number,—are all 1 in. thick; the roof is supported by girders, and the sides and floor are connected by 550 ft. of thick bars and angle-iron. There are 2,940 separate pieces of iron used in making this one room. The total weight is 54,466 lb., and the cubical contents will allow standing-room to 100 persons, and the storage in bags of 48,000,000*l.* in gold.

Proposed Enlargement of the Tower Subway.—The report, just issued, of the directors of the Tower Subway Company, states that the traffic receipts for the past half-year amounted to 738*l.* 5s. 5d., showing a deficiency of 81*l.* 10s. as compared with the corresponding half-year of 1881, a temporary result which, they say, is readily explained by the removal of workmen's dwellings and shops for the widening of streets, the new buildings not having been yet erected. The dividend on the ordinary shares is thus only 2 per cent. instead of 3 per cent. as it otherwise would have been. A Bill for the construction of a carriage subway under the River Thames from Trinity-square, Tower-hill, to the opposite side of the river, which takes power to purchase the Tower Subway, is promoted in Parliament this year. The position is well selected for traffic, as is proved by the City Police returns. It will command the heavy traffic of Bermondsey-street and the Bricklayers' Arms goods stations, which a communication below the Tower would not attract, even if there were no steep inclines. The principal novelty in the proposed scheme is the use of lifts on Sir W. Armstrong's principle, instead of inclined approaches.

Edinburgh Architectural Association.—The association met on the 7th inst., the president, Mr. MacGibbon, in the chair. After some preliminary business, Mr. Andrew Dewar read a short paper on "Architectural Skylines," in which he expressed as his opinion that greater attention should be devoted by architects in their treatment of roofs and chimney stalks. Mr. MacGibbon offered some remarks on Dunblane Cathedral, in the course of which he referred to the peculiarities of the edifice in construction and design. This paper was illustrated by a series of careful drawings, prepared by Mr. Robert Watson. A paper, entitled "Notes on Rubbings from Iona," which had been prepared by Mr. Thomas Leadbetter, late of Edinburgh, now of London, was communicated by the president. At the conclusion, cordial votes of thanks were awarded to the speakers and Mr. Leadbetter.

Masters and Men.—A *réunion* of the *employés* of Messrs. T. W. Smith & Son, of 81, Finsbury-pavement, and 38, Moorfields, also of Isledon Works, Essex-road, Islington, took place at Barnsbury Hall, Islington, on the evening of last Thursday, to celebrate the recovery of Mr. J. E. Smith, the surviving partner and son of the late Mr. T. W. Smith, from a serious illness. A gratifying incident occurred when, after a speech from Mr. J. E. Smith recognising the good feeling present, he was presented with an album containing the several portraits of those connected with the firm, which was handed to him by a deputation headed by an *employé* of forty-seven years' standing.

British Archæological Association.—At the meeting last week, the efforts made to preserve the old Tolhouse, Great Yarmouth, were detailed by Mr. F. Danby Palmer, F.S.A., in a communication which stated that the Mayor and Corporation had agreed to sell the building for a nominal sum to trustees, to be devoted to some useful purpose. Mr. Brock, F.S.A., in reading the above, referred to the great antiquarian interest of the building, which is known to have belonged to the Corporation as early as 1251. The assurance of the safety of the building was received with much applause. Mr. W. de Gray Birch, F.R.S.L., spoke of the readiness with which the building could be adapted for a museum. The second paper read during the evening was on "The Traders' Signs in Old St. Paul's Churchyard," by Mr. H. Syer Cuming, F.S.A. (Scot.). After referring to the custom of denoting shops by signs, the animated appearance which the streets of a town must have presented in Mediæval times was referred to. St. Paul's Churchyard, having been always a place of considerable commerce, the number of trading signs must have been very great. Many hundreds were referred to of very different import.

The Artane Industrial School, Ireland. The buildings at Artane, visited a few weeks ago by the Lord Lieutenant, Earl Spencer, are in course of erection from the designs of Mr. Chas. Geoghegan, architect. Part of it is already completed, and in it some 700 boys are obtaining advantages from the system pursued there.

TENDERS.

For repairs and alterations to premises, No. 30, Sloane-street and Pavilion-road, Knightsbridge, for Mr. H. M. Harris. Messrs. Brunsden & Henderson, architects. No. 3, Barbican Chambers, Aldersgate-street:—
F. Saunders (accepted).

For reinstating damage caused by fire at No. 1, Faringdon-street, New Swindon. Mr. W. H. Read, architect:—
Barrett, Swindon (accepted) £309 18 0

For the erection of shed for the Swindon Water Company (Limited). Mr. W. H. Read, architect:—
Webb, Swindon (accepted)..... £84 12 5

For the erection of running shed and stable at V. W. H. Repository, Swindon, for Mr. T. Hooper Deacon. Mr. W. H. Read, architect:—

	Running shed.	Stable.
Pettifer	£520 0 0	£320 0 0
Phillips & Powell ...	515 0 0	316 10 0
Barrett	498 17 0	283 10 0
Willshire	430 0 0	250 10 0
Henley, Swindon* ...	419 0 0	210 12 0

* Accepted for shed.

For the erection of stable at Wroughton, near Swindon. Bricks supplied by proprietor. Mr. W. H. Read, architect:—
Barrett £186 11 0
Willshire 174 0 0
Henley, Swindon (accepted) 132 12 0

For billiard-room and other alterations to Stormont House, Downspark-road, Hackney Downs. Messrs. Dunk & Geden, architects:—
W. Shurmur £495 0 0
S. Yardley & Sons 455 0 0
Steel Bros., Dalston 415 0 0

For Wesleyan School Chapel, Sidcup. Messrs. Dunk & Geden, architects:—
Stebbings, Sidcup £1,623 10 0
Adcock, Dover 1,583 0 0
Haisman, Foots Cray 1,490 0 0
Knight, Sidcup 1,490 0 0
Lowe, Chislehurst..... 1,455 0 0
Eldridge & Gee, Bermondsey 1,400 0 0
Wood, Chislehurst 1,349 0 0
Otway, Chislehurst* 1,327 10 0

* Accepted with slight reductions.

For sundry alterations, papering and painting, at No. 106, Queen's-road, Bayswater, under the direction of Mr. James Mathews:—

		Allowance for old materials.
C. W. Cross	£442 10 0	£3 10 0
Wilson.....	430 0 0	20 0 0
Hardwick	398 10 0	11 0 0
Tucker.....	398 0 0	8 0 0
Langler & Pinkham.....	390 0 0	
Gibbin.....	383 0 0	8 0 0
Barnett	369 0 0	10 0 0
Crampkin	360 0 0	12 10 0
Rutland & Rendell	342 0 0	10 0 0
Baldwin	338 0 0	12 0 0
W. Conway	330 0 0	10 0 0
W. Perkins.....	319 0 0	
Leask	310 0 0	3 0 0
Treweeke	297 0 0	10 0 0
Lack.....	287 0 0	7 10 0
A. Sterling.....	273 0 0	25 0 0
C. Pereria	238 0 0	20 0 0
Love (accepted)	215 0 0	10 0 0
Byford & Cross.....	206 0 0	7 0 0
Pereria	200 0 0	18 0 0
Earl.....	195 15 6	10 0 0

For shop front and fittings to No. 5, The Promenade, Kilburn, for Mr. T. Burkett. Mr. Walter Graves, architect:—
Helman (accepted) £220 0 0

For drainage of Kelsey Park and Wickham-road, for the Beckenham Local Board. Mr. Geo. B. Carlton, C.E., engineer and surveyor to the Board:—

P. G. Pound, Bow-road, N.	£4,991	4	6
G. Stephenson, Market Harboro	4,304	12	7
W. J. Botterill, Cannon-street	3,977	0	0
G. Rayner, Liverpool	3,936	19	0
J. W. & J. Neave, Lewisham	3,928	17	9
Nowell & Robson, Kensington	3,848	5	6
G. B. Marshall, Brighton	3,757	11	10
Whittaker Bros., Leeds	3,710	12	6
H. Streeter, Croydon	3,692	19	5
Mowlem & Co., Westminster	3,615	18	3
J. Smith, Chelsea	3,594	13	4
Woodham & Fry, Catford	3,579	14	8
J. Dixon, St. Alban's	3,510	0	0
E. & W. Iles, Wimbledon	3,461	15	9
J. Young, Skegness	3,259	10	8
W. Carter, Anerley	3,241	16	2
Beadle Bros., Erith	3,192	0	0
A. Palmer, Birmingham	3,187	3	6

For additions to the North Surrey District Schools, Anerley. Mr. A. G. Hennel, architect. Quantities by Mr. J. R. Vining:—

H. Burman	£1,397	0	0
J. F. Sargeant	1,295	0	0
B. Cooke & Co.	1,250	0	0
J. & C. Bowyer	1,248	0	0
J. Marsland	1,247	0	0
Hunt & Challis	1,190	0	0
J. Longley	1,148	0	0
Smith & Sons	1,119	0	0
G. Masters	1,096	0	0
G. Amer	1,080	0	0
Priestley & Gurney	1,070	0	0
Hann & Co.	1,050	0	0
Parker	1,050	0	0
Le Gassick & Co	1,056	0	0
Holt	1,040	0	0
W. Johnson (accepted)	998	0	0
T. Crossley	993	0	0
F. Higgs	976	0	0
R. L. Wood	845	0	0
F. Buchan	835	0	0

For the extension of Penryn-road, Acton, for Mr. George Wright, The Elms, Acton. Mr. C. Nicholson Lailey, engineer and surveyor to the Local Board, Acton,:—

J. Narroway, Acton	£1,370	2	7
Nowell & Robson, Kensington	1,247	0	0
W. Nicholls, Wood Green, N.	1,197	0	0
J. Cardus, Acton	1,184	0	0
J. Pizzey, Hornsey, N.	1,175	0	0
R. Finnegan, Northampton *	1,147	0	0

* Accepted.

For the erection of four houses, Lucien-road, Tooting Estate, for the Directors of the Birkbeck Freehold Land Society. Mr. Sydney B. Grosvenor, architect:—

Burman	£3,287	0	0
Lawrence	2,950	0	0
Bassett & Son	2,920	0	0
Mason	2,791	0	0
Craske	2,650	0	0
Coulthard	2,585	0	0
Johnson	2,561	0	0
Hutchens, Streatham (accepted)	2,350	0	0

For the erection of market at Newark-on-Trent. Mr. Charles Bell, architect. Quantities by Mr. H. Lovegrove:—

Contract No. 1.—*General Builders' Work.*

W. Holdsworth	£1,878	0	0
Chapman & Jolland	1,738	0	0
T. Woolston	1,710	0	0
J. Bulling	1,530	17	8
Crosby & Son	1,419	0	0
Smith & Lunn	1,400	0	0
W. Duke	1,395	0	0
C. Baines	1,390	0	0

Contract No. 2.—*Ironwork.*

Young & Co.	£665	0	0
Bammage	524	11	9
Dawnay & Co.	485	0	0
T. & W. Bradley	448	6	10
Williams & Co.	440	0	0
Bridge Roof Company	425	0	0
Duke	420	15	0
Taylor & Parson	414	6	6
Victoria Foundry	383	0	0

For alterations and repairs at No. 20, Upper Wimpole-street, for Madame d'Agostino. Mr. F. Wallen, architect:—

P. Yardley & Sons (accepted)	£699	5	0

For the erection of two blocks of dwelling-houses (C and D) on the Bridge House Estate, Brockley, London, for the Land Development Association, Limited. Mr. W. Charles Evans, 3A, Poets' Corner, Westminster Abbey, architect:—

Wm. King & Son, Vauxhall Bridge-road (accepted)	£3,680	0	0

For alterations and additions to No. 44, Talbot-road, for Mr. J. H. Graves. Mr. Walter Graves, architect. No quantities:—

C. Frost	£791	10	0
H. Davey	725	0	0
Stimpson & Co.	581	0	0
Langridge & Son	555	0	0
J. O. Richardson	535	0	0

For alterations and repairs to No. 102, Southampton-street, Camberwell, for trustees of Mrs. May. Mr. Walter Graves, architect:—

J. O. Richardson	£127	0	0
Oldis Bros. (accepted)	119	0	0

For the erection of stables at Hampstead, for Mr. C. Kilburn. Mr. Geo. Sherrin, architect:—

S. J. Scott (accepted).

For alterations and additions to Brook House, Southgate. Mr. A. R. Barker, architect. Quantities by Messrs. J. S. Lee & Son:—

Foster & Dicksee	£5,242	0	0
Kilby	5,223	0	0
L. & W. D. Patman	5,123	0	0
Gardener	5,045	0	0
Higgs & Hill	4,960	0	0
Tongue	4,777	0	0
Horlock (accepted)	4,400	0	0

For alterations, &c., to the Stag Tavern, South Acton, for Messrs. Huggins & Co. Mr. C. H. Thomas, architect, 48, Pall Mall:—

Manley, Regent's Park	£450	0	0
Varden, Notting Hill	370	0	0
Rogers, Turnham Green (accepted)	350	0	0

TO CORRESPONDENTS.

J. B.—C. E.—A. M.—D. D. & A. B.—G. W. D.—T. G.—J. & T. T.—M. & Co.—F. B. P.—B. & H.—D. & G.—C. & S.—S. B. G.—C. N. L.—P. A.—E. R.—S. H.—T. T.—C. R. S.—R. P.—A. H.—A. G.—W. P. D. T. S. & Son.—T. B. & Co.—B. & Son.—A. S. & S.—F. W. & Co.—T. W. & Co.—E. P. & Co.—S. & T.—E. R.—W. A. S. & Co.—T. B. & Co.—C. R.—Le G. & Co.—Omega.—Col. J.—R. P.—A. T. S.—F. (shall be considered).—G. T. C. (next week).—H. & O. (next week).—W. G. B. L. (declined).

Correspondents should address the Editor, and *not* the Publisher, except in cases of business.

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

NOTICE TO ADVERTISERS.

Persons advertising in the *Builder* may have

REPLIES ADDRESSED TO THE OFFICE
46, Catherine-street, Covent-garden, W.C.,
FREE OF CHARGE.

Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage.

CHARGES FOR ADVERTISEMENTS.

SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS, TRADE, AND GENERAL ADVERTISEMENTS.

Six lines (about fifty words) or under ..... 4s. 6d.
Each additional line (about ten words) ..... 0s. 6d.

Terms for Series of Trade Advertisements on front page, Competitions, Contracts, Sales by Auction, &c. may be obtained on application to the Publisher.

SITUATIONS WANTED.

FOUR Lines (about THIRTY words) or under ..... 2s. 6d.
Each additional line (about ten words) ..... 0s. 6d.

PREPAYMENT IS ABSOLUTELY NECESSARY.

*** Stamps *must not* be sent, but all small sums should be remitted by Cash in Registered Letter or by Money Order, payable at the Post-office, Covent-garden, W.C. to

DOUGLAS FOURDRINIER, Publisher,
Addressed to No. 46, Catherine street, W.C.

Advertisements for the current week's issue must reach the Office before THREE o'clock p.m. on THURSDAY.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c. left at the Office in reply to Advertisements, and strongly recommends that of the latter COPIES ONLY should be sent

TERMS OF SUBSCRIPTION.

"THE BUILDER" is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum, PREPAID. Remittances payable to DOUGLAS FOURDRINIER, Publisher, 46, Catherine-street, W.C.

Best Bath Stone.
WESTWOOD GROUND,
Box Ground, Combe Down,
Corsham Down,
And Farleigh Down.
RANDELL, SAUNDERS, & CO., Limited,
Corsham, Wilts. [ADVT.

SEASONED
CORSHAM DOWN,
FOR
WINTER USE.
PICTOR & SONS, BOX, WILTS.
[ADVT.

Doulting Freestone and Ham Hill Stone of best quality, in blocks, or prepared ready for fixing. An inspection of the Doulting Quarries is respectfully solicited; and Architects and others are CAUTIONED against inferior stone. Prices, delivered to any part of the United Kingdom, given on application to CHARLES TRASK, Norton-sub-Hamdon, Ilminster, Somerset. — Agent, Mr. E. WILLIAMS, 73, Charlotte-street, Portland-place, W. [ADVT.

Doulting Freestone,
HAM HILL STONE,
BLUE LIAS LIME
(Ground or Lump),
Of best quality, supplied from their own Quarries and Kilns by STAPLE & HANN, Stoke, Ilminster. Agent, Mr. H. MITCHELL, 5, Augustus-road, Hammersmith, London, W. [ADVT.

Asphalte.
Seyssel, Patent Metallic Lava, and White Asphaltes.
M. STODART & CO.
Office:
No. 90, Cannon-street, E.C. [ADVT.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 38, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. [ADVT.

Immense quantities of
DRY WAINSCOT,
DRY MAHOGANY,
DRY WALNUT,
in all thicknesses.
B. J. HUDSON & SONS,
Whitfield-st., W., and Great Peter-st., S.W.
London. [ADVT.

J. L. BACON & CO.,
MANUFACTURERS OF IMPROVED
STEAM AND HOT-WATER APPARATUS,
FOR WARMING AND VENTILATING
Private Houses, Churches, Schools, Hospitals, Manufactories, Greenhouses, &c.
OFFICES AND SHOW-ROOMS:—
No. 34, UPPER GLOUCESTER PLACE, DORSET SQUARE, LONDON, N.W.
And at DUBLIN, BELFAST, and NEWCASTLE
Illustrated Pamphlet on "Heating" post free.

CHAPPUIS' PATENTS FOR REFLECTING LIGHT.

DAYLIGHT REFLECTORS OF EVERY DESCRIPTION,

ALSO

ARTIFICIAL LIGHT REFLECTORS.

WHY BURN GAS?—CHAPPUIS' REFLECTORS DIFFUSE DAYLIGHT.—They are exclusively adopted by and fitted at Buckingham Palace, all H.M. Government Offices, Houses of Parliament, H.M. First Commissioner of Works, the Metropolitan Board of Works, British Museum, South Kensington Museum, Royal Institution, Guildhall Museum, on board H.M. Ships, also Railway Companies' Offices, Hospitals, Institutions, Banks, Insurance Offices, Manufactories, Private Houses and generally from Noblemen's Mansions to Artisans' Workshops. 30,000 in use in London alone. Patronised by leading Architects, Engineers, Contractors, &c., &c.

N.B.—For Prospectuses and Diagrams, address Stamped Envelope to

P. E. CHAPPUIS, Patentee and Manufacturer, 69, FLEET-STREET, LONDON.

NOTICE.—The POLYGONAL REFLECTOR (Latest Patent) FOR ARTISTIC and PICTURE GALLERIES.
Its construction allows of the angle of light being readily altered so as to reflect in any desirable direction.